LONDON
JOURNAL OF MEDICINE,

A MONTHLY

Record of the Medical Sciences.

OCTOBER 1850.—No. XXII.

ORIGINAL COMMUNICATIONS.

THE STETHOMETER:

AN INSTRUMENT FOR FACILITATING DIAGNOSIS, BY MEASURING THE DIFFERENCE IN THE MOBILITY OF OPPOSITE SIDES OF THE CHEST.

By RICHARD QUAIN, M.D., Assistant-Physician to the Hospital for Diseases of the Chest at Brompton, etc.

IT is well known, that the movements of the walls of the chest, during respiration, correspond to, and are influenced by, the state of the organs placed within or beneath them. Hence, then, in our investigations of the diseases of these organs, we invariably, and frequently in the first instance, examine these movements. In many cases, the modifications produced by disease are so great as to be at once evident to the eye, or to the eye assisted by the hand. In other, and much more numerous cases, the eye and hand cannot detect these alterations. Indeed, nothing is more common than to find observers, at the same moment, differing in opinion as to the greater or less mobility of a portion of one or other of the sides of the chest. Even the indefinite terms here used, "greater" or "less", become sources of fallacy and doubt. It is, therefore, very desirable that a mode of investigation, admitted by all to be most important, should be exact for observation, and definite for description. I felt this more particularly some years ago, when engaged in clinical demonstrations to students, of the different modes of investigating diseases of the chest; and I at that time endeavoured by various contrivances, constructed chiefly on the principle of the callipers, to surmount the difficulty. My friend, Dr. Sibson, was, however, then more successful than myself; and he introduced an instrument which, in his hands, has afforded very important results in the investigation of the respiratory movements of the chest and abdomen, both in health and disease.[1] Subsequent consideration led me to believe that an instrument, simple, portable and economical, capable of ready application and of affording very valuable

[1] Medico-Chirurgical Transactions, vol. xxxi.

information, might be constructed, on a different principle to any which I had previously seen. I explained my requirements to Mr. Delolme, chronometer maker, whose ingenuity has supplied many ingenious and beautiful contrivances of an analogous kind. The result has been the little instrument which I am now going to describe, and which has, in the hands of those who have used it, as well as in my own, been found very efficient for the intended object: viz., to measure the comparative mobility of opposite sides of the chest. It is susceptible of many other applications, to some of which I shall again refer, and which will, no doubt, suggest themselves to those into whose hands it may fall.

Description. The little instrument (see fig. 1[1]) consists of a flat case, not unlike a watch-case: on its upper surface is a graduated dial and an index, which stands at a maximum number, that may be considered a "zero." This case contains a very simple movement, by means of which the index can be acted on. A silk cord, which may be of a sufficient length to surround one-half, or the whole circumference of the chest, passes through an aperture in one side of the case. This cord acts on the index. When the cord is drawn out, or extended for the space of one quarter of an inch, it will be observed that the point of the index will once traverse the circumference of the graduated dial. In other words, when the index has gone once round, it shows that the cord has been extended one fourth of an inch. It will be further seen, that the dial is graduated, or divided, into fifty equal parts. Each of these parts is, therefore, equal to the fiftieth part of a quarter of an inch; that is, to the 1-200th of an inch.[2] The index is further capable of going round a second time, on an additional quarter inch of the cord being drawn out. Hence, two revolutions of the index are equal to half an inch of movement—an extent of motion sufficient for all practical purposes. The pedestal and circular foot, shown in the same figure, will be subsequently referred to.

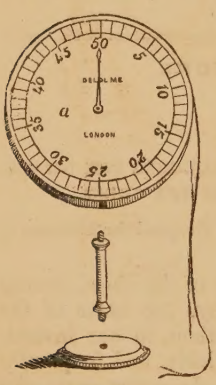

Fig. 1.

Mode of application. It is quite evident, that if the instrument be so placed that extension be made on the cord, the amount of the extension will be shown by the movement of the index on the dial. For example (as in fig. 2) if the instrument is laid flat on the spine, and held in its place by the first and second fingers of the left hand, whilst the cord is carried round the chest, and pressed on one of the ribs, or the sternum, by the fingers of the right hand, then, when the individual under examination expands the chest during inspiration, the amount of expansion will be communicated to the cord, and thus indicated on the dial. The cord may then be directed around the opposite side of the

[1] The instrument is reduced in this sketch to half size.

[2] In making and recording observations with this instrument, I am in the habit of expressing a fact thus: right apex, 30; left, 15. It will be understood that the motion is as 15 to 30, without reference to these figures being eighths, fiftieths, or two hundredths.

chest, and thus will be at once seen any difference which exists in the relative mobility of the two at the point under examination. It will, of course, be absolutely necessary in every examination, such as this, that corresponding parts of the chest be compared. For all useful purposes it may be said, that the movements of the opposite sides of the chest, in health, are identical—the difference which exists over the region of the heart, at the left side, is too immaterial to interfere with practical conclusions. The instrument may be applied to any part of the chest in the mode here described. In figure 3 it is shown as applied on the sternum, and beneath one of the clavicles. The latter position is one of considerable importance, from its connexion with the deposition of tubercle towards the summit of the lung. I find that on applying the instrument here the cord may, in this instance, be directed towards the arm more conveniently than in any other direction, as shown by the black line, and pressed against a point near the insertion of the deltoid muscle. The cord may also be directed downwards, or outwards, and upwards, or inwards, (as shown by the dotted lines,) and retained on any fixed point. Nor, as is evident, need this point be a part of the body. It may be on the bed, or on a chair, etc., always providing that the direction of the cord be such as to receive the impression of the movement of the part of the body under examination, and that its position be symmetrical at both sides.

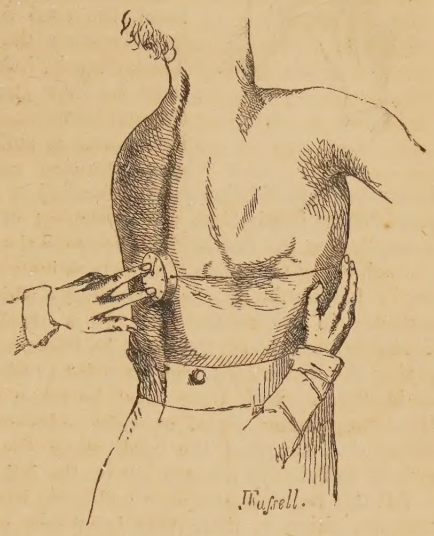

Fig. 2.

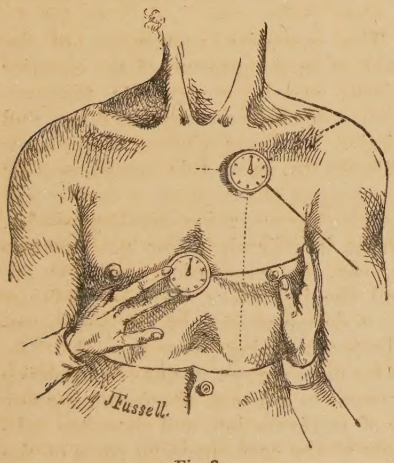

Fig. 3.

The use of the pedestal, which can be fixed in the side of the case with the foot attached, is shown in Figure 4. The instrument

thus used is intended to ascertain the modifications of the movements over a limited or circumscribed spot. On this spot, the foot is placed and held, (as shown in the figure,) by the fingers of the left hand, the cord directed towards this point is held between the fingers of the right hand. These fingers, being thus made the fixed point, must be kept steady and not allowed to touch the part under examination. The spring in the instrument is sufficiently strong to resist the gentle tension made by the fingers, and the instrument itself being pushed forward or raised by the elevation of the part during inspiration, the movement of the index, as when the case is applied on the flat surface, becomes the measure of this elevation.

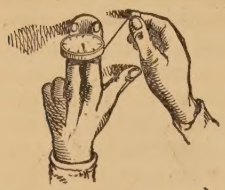

Fig. 4.

Such being the mode of using the instrument, it will be necessary to say a few words on the precautions which are required in securing accuracy in the result. 1st. It is absolutely imperative that corresponding portions of the chest be examined, and that the mode of applying the instrument, and the point at which it is applied at each side, be identical. 2nd. Care must be taken that the patient breathes in the same manner whilst opposite sides are being examined. 3rd. It should be seen that the cord, when the observation is commenced, is held sufficiently tense to act on the index.

All this requires attention and some little effort; for, as in all other matters, there is little that is of any value which can be obtained without some labour. Though to some few patients these carefully conducted examinations may be irksome, yet to the vast majority they are far otherwise. In the latter, they beget confidence in the medical attendant, and frequently at once inspire a feeling which renders all future intercourse not less pleasing than it is conducive to successful treatment.

Uses of the Instrument. The expansive movements of the chest during inspiration may be said to be the measure of the capacity of the lungs for air. So they are; and by an accurate measurement of the one, we might estimate tolerably correctly the other, and thus be able to compare the relative breathing powers of different individuals. It is exceedingly difficult to make this comparison by external measurement; for the movements of analogous or corresponding parts of the chest, even in those with unimpaired respiratory powers, are remarkably different in different individuals. For not only are such movements modified by age, sex, and occupation, but they are influenced by peculiarities beyond the influences apparently of any fixed or recognized rule. I therefore do not propose to use this instrument in testing whether A has a better breathing power than B. The spirometer of Dr. Hutchinson is a far more correct means of estimating this quality. I propose my instrument as a means of ascertaining any want of symmetry, independently of malformation, and therefore indicative of disease, in the movements of the corresponding parts of the same chest. It is not my intention to discuss here the various conditions, under which this want of symmetry may occur. Obstruction, for example, of a bronchus by a foreign body in, or by a tumour press-

ing on it, will interfere with the movements of the side of the chest containing the lung to which such bronchus is distributed. Disease of the substance of the lung, tuberculous, malignant, or inflammatory, and emphysema affecting the air-cells, also prevent the free expansion of the lungs or parts of them affected. Diseases of the pleura, viz., acute or chronic pleurisy; bands binding down the lung; pleuritic effusions or tumours in the pleura, have a like effect. Pleurodynia, and diseases of the external walls of the chest, may, of course, interfere with their free movements. However trifling the degree of limitation of motion, which may be produced by any of these diseases, or by many others not here enumerated, I believe this instrument, if properly used, will inevitably indicate it. When such limitation is thus observed, recourse must be had to the study of the general symptoms, and to the other means of physical diagnosis, to discover on what the irregularity depends. Thus, then, attention may be, in the first instance, directed by the use of the instrument to the seat of disease; or, when disease has been suspected or discovered by other means, mensuration will be useful in confirming the diagnosis, and expressing the extent of the local lesion. In both these senses, I have found the instrument an exceedingly valuable aid in the diagnosis of the earlier stages of phthisis. Indeed, it is quite remarkable how early, and to what an extent, the respiratory movements are modified by tubercular deposit. I hope, however, on some future occasion to return at some length to this and some allied subjects connected with the disease. It will, of course, be evident that if both sides of the chest are equally diseased, we lose the means of comparing them; but such an event is one of very rare occurrence. The instrument can also be used in investigating the movements of diaphragmatic or abdominal respiration, and in taking notice of any irregularity which may be produced in it by disease of any of the organs placed beneath the diaphragm.

My friend, Dr. Alex. Henry, has suggested to me, that not only can the instrument be used for measuring dynamical movements, but it can also be applied in following changes of volume, whether of increase or diminution, in solid tumours or other swellings. For this purpose, the instrument should, on every occasion of an examination being made, be placed on the same spot, and a definite length of cord should be used in encompassing the part examined; any increase of volume will, of course, be shown by the movement of the index. When it is required to follow a diminution of volume, the index, being made to revolve once or twice, should be thus retained, when the examination is commenced; the stages of its return to the zero point will be then the measure of decrease. Having thus given a brief description of this little instrument, of its mode of application, and of its uses, I present it to my professional brethren, with the desire that it may prove as useful to them as it has been to myself, and to those who have already used it.[1]

23, Harley Street, September 1850.

[1] The instrument must have a name, and I have therefore called it a Stethometer. (Στῆθος, *the chest*, Μετρέω, *I measure*.) It may be procured from Mr. Coxeter, surgical instrument maker, 23, Grafton-street East, Fitzroy-square.

THE ENTRANCE OF AIR BY THE OPEN MOUTHS OF THE UTERINE VEINS, CONSIDERED AS A CAUSE OF DANGER AND DEATH AFTER PARTURITION.[1]

By JOHN ROSE CORMACK, M.D.Edin.; F.R.S.E.; Fellow of the Royal College of Physicians of Edinburgh; formerly Physician to the Royal Infirmary and Fever Hospitals of Edinburgh; Physician to Putney College, etc.

In connexion with the subject specially indicated by the title of this paper, it will be necessary to consider with attention, though briefly, the phenomena which follow the Introduction of Air into the Veins; and especially to call attention to the fact, that these phenomena vary exceedingly in character and degree according to certain circumstances, most of which seem to be explained by cases and experiments. The errors of opinion which have arisen as to some published cases, from inattention to the fact, that air may be generated within the blood-vessels during life, and after death, want of space will prevent me from considering upon this occasion.

The following remarks are divided into sections, so that the different topics may, as much as possible, be considered separately. The cases and experiments are introduced in the most convenient places, but of course they will often aptly illustrate particular points in all the sections.

I. The various Effects caused by the Entrance of Air into the Veins, and the Appearances found on Dissection. Detail of Experiments and Cases.

II. Statement of facts, proving that the Entrance of Air by the open mouths of the Uterine Veins may cause Dangerous Symptoms, and even Death. History and Critical Examination of some of the alleged Cases.

III. Prevention and Treatment of such accidents, after Parturition.

I. THE VARIOUS EFFECTS CAUSED BY THE ENTRANCE OF AIR INTO THE VEINS, AND THE APPEARANCES FOUND ON DISSECTION. DETAIL OF EXPERIMENTS AND CASES.

Till very recently, the opinions which have been entertained regarding the effects produced by the entrance of air into the organs of circulation, have been vague and contradictory. Even now, perhaps, they are not quite settled. There are several ways in which hazard arises, or death ensues, from the entrance of air into the veins. The phenomena and the issue are materially influenced by a variety of circumstances; but especially by the quantity of air introduced, the rapidity and force with which it enters, and the relation which the aperture, through which it gains admission, bears to the calibre of the vein in which is the aperture.

Bichat, Sir Charles Bell, and others, have maintained that extremely small quantities of air introduced into the veins prove fatal: but this

[1] This paper was read before the Westminster Medical Society on the 23rd of March, 1850; and a short abstract of it appeared at p. 589 of this Journal for June 1850. It was likewise shortly reported in the *Lancet, Medical Times, Medical Gazette, Edinburgh Monthly Journal, Provincial Medical and Surgical Journal, Dublin Medical Press,* as well as in several foreign medical periodicals.

notion has been completely disproved. The entrance of air, even in considerable quantity, into the circulation, is by no means necessarily fatal. Experiments on animals, and cases which have occurred in the human subject, alike testify to the accuracy of this statement.

The following is an exact account of an experiment which I performed on a rabbit:—

Experiment. A large quantity of air was injected into the jugular vein. Very violent effects were produced; so violent, indeed, that the animal seemed for twenty minutes to be in a moribund, or at least in a very critical state. To our astonishment, however, it gradually came round; and, in about an hour, the respiration, which was at first very laboured, became tolerably natural, and the rabbit was soon little out of sorts. In a few hours afterwards, the breathing, as far as I could judge, was quite natural, and the animal ate food with avidity. I kept it for sixteen days, and never observed anything wrong, except an abscess which formed in the seat of the operation. Upon dissection, immediately after killing it, the lungs were found to be perfectly healthy, and there was no air in any of the blood-vessels.[1]

I believe it often happens that air enters the veins during operations; sometimes the quantity is so small, as to produce no notable manifestations; and at other times, after the characteristic symptoms of the accident have been produced in an alarming degree, the case has, without any special treatment, terminated favourably.

A very apt illustration of this remark has been kindly communicated to me in the following letter from Sir B. C. Brodie.

"21 *March*, 1850.

"My dear Sir,—I send you the case, which is quite at your service.

"Case. A young lady consulted me in the year 1842, on account of a large tumour occupying one side of the neck. The tumour was fully covered by the sterno-cleido-mastoideus muscle; but it was quite moveable on the parts below. In the operation for the removal of the tumour, I found it necessary to divide the muscle, which lay over it. In the course of the dissection, it was discovered that the internal jugular vein was so intimately connected with the under surface of the tumour, as to be inseparable from it; the tumour itself lying in contact with the carotid artery and pneumogastric nerve. Under these circumstances, I was led to apply a ligature to the vein above, and another to the vein below the tumour, and then remove about three inches of that vessel with the tumour. Towards the conclusion of the operation, on dividing some parts near the clavicle, a branch of the principal vein was wounded, and immediately a hissing sound was heard, which I concluded to have been produced by air entering the wounded vessel. The patient became faint, so that the pulse at the wrist could scarcely be felt, and she was at the same time insensible. I caused her to be laid on the floor, where she remained insensible and faint for half an hour, and then gradually recovered, so that she could be removed to bed. On the following day she was apparently well, but wholly unconscious of what had occurred, from the time of her becoming faint, until the expiration of several hours. The tumour was of a fibrous

[1] Author's Inaugural Dissertation on the Presence of Air in the Organs of Circulation. Edinburgh, 1837, pp. 28-29.

structure, not apparently malignant; and two or three years afterwards, there had been no return of the disease. No inconvenience had ever arisen from the removal of the internal jugular vein.

"Mr. Kennedy, of Tavistock Square, attended the patient with me.

"Yours truly, B. C. Brodie."

Another interesting illustration of the good hope which there is of recovery, when the quantity of air admitted is small, occurred in 1848, in the practice of Mr. Gay; and has been detailed and commented upon in an instructive manner by Mr. G. F. Lane, in the *Medical Gazette* for May 31, 1850, p. 926. The following is a slightly abridged account of the case.

Case. *Admission of Air by a Wound in a Branch of the Axillary Vein. Alarming Symptoms. Complete Recovery.*

Mrs. Simkiss, æt. 46, a married woman, of light complexion, usually of good health, and the mother of eight children, had a painful tumour in the axilla, which had first appeared on weaning her youngest child six years ago. On the 7th of February, 1848, it was removed by Mr. Gay, the patient being under the influence of chloroform. In dissecting out the tumour, a tributary branch of the axillary vein was wounded near the chest; the opening was small. Air was seen, both by Mr. Gay and myself, to enter the orifice, accompanied with a peculiar noise, sufficiently loud to be audible to all present: the sound being quite characteristic of the entrance of air and fluid through a contracted opening, or of air drawn through fluid,—something between gurgling and hissing, and resembling the sound heard when, in drawing the last portion of a fluid from a vessel into a syringe, some air accompanies it. A great change was immediately noticed in the condition of the patient: the powers of the circulation sank; the woman, who had nearly recovered from the effects of chloroform, became exceedingly faint, and sank down in the chair. Mr. Gay instantly detached the portion of gland he was engaged in removing, and applied pressure above the opening in the wounded vein. The pulse was now imperceptible; the face deadly pale. Brandy was freely given, the wound closed as speedily as possible, the arm brought to the side, and the woman placed in the recumbent position. The surface of the body became cold, and the patient seemed scarcely to breathe, Ammonia was held to the nostrils; bottles of hot water were applied to the feet; the legs and arms were rubbed continuously; the feet and hands immersed in hot water; hot brandy and water poured down the throat in considerable quantities, and subsequently some sulphuric ether. After the lapse of an hour and a half, during which these measures were continued, the pulse at the wrist could be detected beating regularly, and the woman began to regain her consciousness, which she had lost immediately after the entrance of air into the vein. After this, she fell into hysterical fits, which soon passed off again, and after two hours she was placed on the bed, so far recovered as to admit of a compress being applied, and the arm bandaged to the side; the pulse beating 80 in a minute, regular, but feeble. She was ordered spiritus ammoniæ aromaticus, in mistura camphoræ, every four hours. She recovered without any bad symptoms. There has been no return of the disease; and her general health has been better since than before the operation.

Regarding the circumstances which modify the effects produced by the entrance of air into the veins, I entertain, substantially, the same opinions which I expressed in 1837, and which have been largely noticed by numerous subsequent writers, and likewise pretty fully adopted by the two authors who have most elaborately discussed the subject, viz., Professor Wattmann of Vienna, and the late Professor John Reid of St. Andrew's. As my Thesis has been long out of print, I give the following passage at length.

"Very considerable quantities of air may be introduced into the circulation without producing death. The concurrent testimony of a variety of experimenters establishes this beyond the possibility of doubt. Sometimes the patient to whom the accident happens, or the animal experimented on, suffers only transient inconvenience, or makes a complete recovery; and, in other instances, death ensues so late as some days after the admission of the air. Two very interesting subjects of investigation are thus presented to our notice. In the first place, what are those circumstances which thus modify the result? And, then, what is the nature of the modifications which occur under these varying circumstances?

"The different modifying causes are:—

1. The *quantity* of air admitted:
2. The *rapidity* of its admission: and
3. The *situation of the orifice* through which it enters.

"That *the result is modified, to a very great extent, by the quantity of air admitted*, it is unnecessary to insist upon at any length. The experiments of Nysten, Magendie, Wing, and others, clearly shew that it is only when introduced in considerable quantity that there is a fatal issue. This I have satisfied myself of by repeated experiments. The same fact has also been stated by Dr. Blundell, in his memoir on the transfusion of blood. It is probable, that when slowly introduced, the oxygen is either in whole or in part absorbed, and the volume of the elastic fluid thus materially diminished. That such absorption does really take place, there can be no doubt; for the experiments of Dr. Christison distinctly prove that the oxygenation of the blood is a purely chemical process, and that even out of the body venous blood absorbs a large quantity of oxygen, and changes its purple for a florid hue. Nysten infers from various experiments, that some of the injected gas may be thrown off by the lungs."[1]

To shew the truth of these remarks, I will now relate three of the many analogous experiments which I have performed on animals.

EXPERIMENT. *Sudden Introduction of Air into the jugular vein of a horse: convulsions: death in three minutes. Enormous distension of the right auricle with frothy blood: air in every visible vein.*

The subject of this experiment was a horse about seventeen hands high, and in pretty good condition, but which was condemned to death on account of an incurable cancer of the foot. A tube, a quarter of an inch in diameter, was introduced into the left jugular vein. The man who blew filled his chest twice, and continued to blow for a minute. He then stopped, on account of the symptoms of uneasiness which the

[1] Op. cit., pp. 22-23.

animal exhibited. In a few seconds, the horse staggered and fell; and in three minutes, from the commencement of the introduction of air, he was quite dead. During the period he survived after falling, he made great and violent efforts to respire, and during that time was strongly convulsed, the convulsions commencing soon after he fell. It was computed that he lost about eight quarts of blood, which is the quantity usually taken at an ordinary venesection.

Sectio. Air was found in every visible vein over the whole body. The chest was opened an hour and a half after death, when the lungs were seen to be collapsed, and in no degree emphysematous. All the cavities of the heart, but particularly the right auricle, were distended, and had a tense elastic feel. The right side was first examined. The auricle was enormously distended; and, upon a small opening being made with the scalpel, frothy blood, with which the cavity seemed to be entirely filled, instantly rushed out. The greater part of the ventricle was filled with fluid and coagulated blood, but there was also some in a frothed state. The left auricle contained frothy blood, and some coagulated masses. In the left ventricle, the quantity of air was just sufficient to make its existence appreciable; but there was a great quantity of blood, both fluid and coagulated, in this cavity.[1]

Experiment. *Introduction of Air into the jugular vein of a rabbit: convulsions: death in two minutes. Right side of heart distended with air unmixed with blood, as well as frothy blood: fluid blood in left side. Irritability of heart nearly lost. Bubbles of air in vena cava and larger abdominal veins.*

A tube, almost equal in diameter to a crow-quill, was inserted into the right jugular vein of a rabbit. In the course of two minutes, I introduced three or four full expirations. During this time the animal lay quite tranquil, and did not struggle in the least, but the breathing was difficult, and the heart's action feeble and fluttering. Just as I desisted from blowing, I observed some slight convulsive movements of the limbs, and in a few seconds more they recurred. Respiration now ceased, and there were no more convulsions. The thorax was immediately laid open. Great venous congestion everywhere presented itself. The heart was enormously distended. Upon puncturing the right auricle and ventricle, air unmixed with blood issued forth; and in the auricle there was a good deal of frothy blood. The froth was not nearly of so light a consistence as in the former experiment, owing, probably, to the blood and air not having had sufficient time to be thoroughly agitated together. The left side of the heart contained fluid blood. It is worthy of remark, that the irritability of the heart was almost extinct. Even though rapidly relieved of its load of blood and air, the contractions, excited by pricking it with the knife, were unusually trifling. In the horse, again, the contractions of the heart continued very forcible, long after it had been cut out of the body. The lungs were next examined, and were found to be quite healthy. They were collapsed, and in no degree emphysematous. In the vena cava, and some of the larger abdominal veins, bubbles of air were observed; but in most of the other vessels examined, none could be detected.[1]

[1] Op. cit. pp. 10-11.

EXPERIMENT. *Injection of Air into mesenteric vein of a rabbit. Air found in the veins of the liver: none in any other part of the body.*

I threw a quantity of air into one of the mesenteric veins of a rabbit, and in eight minutes afterwards killed the animal. The liver was in a state of almost complete anæmia; and, upon slicing it, minute bubbles of air appeared at every point on the incised surfaces. There was no air apparent in the heart, nor in any part of the body, except the liver.

I will now detail the case of a man whom I had the opportunity of watching for some hours after the entrance of air into a vein of the neck, and whose body I inspected after death. The leading facts are already well known to the profession; the case having been noticed, with more or less particularity, in all the medical journals, at the time of its occurrence. The various phenomena which presented themselves in this case were watched with intense interest; for if the accident had been an intentional experiment, it could not have been more suited to illustrate the physiology, pathology, and treatment of this class of cases.

CASE. *Entrance of Air by a rigid Vein in the Neck, opened accidentally by a seton-needle. Asphyxia, and convulsions: death in seven hours. Congestion of the right side of the heart found on dissection.* [This case was described in the daily newspapers, in the *Lancet*, and other journals, at the time of its occurrence. References to these imperfect reports have been made by scientific writers.]

William Richards, aged 39, labouring under chronic laryngitis, applied to Dr. R. Willis, of Barnes, for advice, in the spring of 1848. He was first treated by leeches, then by blisters; and lastly it was resolved to introduce a seton, as Dr. Willis had found this, in other cases, a completely successful method. On the 25th March, the deceased came to Dr. Willis about 9 A.M. Dr. Willis set him in a chair, instructing him as to the proper attitude. He threw back his head, which, by keeping the parts tense, he being much emaciated, was inconvenient. Dr. Willis having desired him not to do this, pinched up the skin with the finger and thumb of the left-hand, and immediately thrust in a seton-needle, about the size of a common bleeding-lancet, armed with a strip of lint. It entered horizontally, about two inches and a half above the breast-bone, and not at all near any important blood-vessel. What followed was thus related by Dr. Willis to the coroner. "At the instant of its entrance, I heard a slight momentary hissing sound. At first I thought I had opened into a subcutaneous abscess communicating with the windpipe; but, almost at the same moment, I looked in the poor man's face, and saw that another, and far more serious event had occurred; that the rushing of the air was not from the windpipe, but into some small vein which had been implicated in the operation. The man was deadly pale; his features were set; he fainted; and subsequently became rigid and convulsed. I kept my fingers on the openings, to arrest the farther entrance of air during inspiration: I caught the man, and laid him down on the floor." It was in these circumstances that Dr. Willis sent for me; and in half an hour I was with him. The muscles were then rigid, and momentarily convulsed. The man seemed as if in an agony for breath: the

[1] Op. cit. pp. 11-12.

muscles of respiration were in a state of frightfully violent, and somewhat spasmodic and intermitting action. The sound of air and fluid being, as it were, churned in the heart, was heard with, and also without the stethoscope. Dr. Willis and I entirely agreed as to the nature of the accident; and we were also of opinion that it was our first duty to relieve the oppressed lungs, and over-distended heart, by bloodletting, and then to use such stimuli, internally and externally, as the progress of the case might warrant or suggest. We hoped that in this way the rapidly increasing congestion of the lungs, and therefore impending asphyxia, might be averted. We judged it dangerous to open the jugular vein, because we feared that, during the deep and violent inspirations, more air might be drawn down into the heart, as, from the rigid state of the fascia of the neck, it was evident that the tube might be kept gaping and patulous. If we had had any one to aid us, we would have freely opened the jugular vein, and, by mouth-suction at the wound, relieved the right side of the heart. In the circumstances, it was determined to open a vein at the elbow: and, in three or four minutes after my arrival, I performed this operation. Before the bleeding, he was almost pulseless; but after it the pulse immediately revived, and the ammonia and brandy, which had previously produced no benefit, caused, when now repeated, a manifest improvement in the pulse and respiration; and the action of the diaphragm became less convulsive. Death, which before the bleeding had seemed to be momentarily impending, was certainly delayed, for a time, by the measures which we adopted. We now sent to London for Mr. Syme, who was with us about noon. He found us applying, at intervals, warmth to the feet, dashing cold water on the face, and giving stimulants. The patient was in a more hopeful state, just as Mr. Syme entered, than he had yet been. Mr. Syme entirely concurred in the view we had taken of the nature of the case, and of its treatment. Shortly after Mr. Syme's arrival, I was obliged to leave the patient for an hour and a half. I returned at 2 P.M.; and, to my great surprise, found that the man was not only alive, but apparently better. The pulse was good, and the breathing was quieter, and more regular; but the locked-jaw, and opisthotonic arch of the back, proclaimed that the case was still desperate. Violent convulsions came on at three o'clock; the features were distorted, and the bleeding tongue was pushed up against the teeth, so as partly to protrude through their crevices. The last time he swallowed, was about a quarter past two o'clock. After several violent fits of convulsions, he expired a few minutes before 4 P.M., the body having previously become colder and colder, and the surface more and more livid. He died in a state of asphyxia. Up to a very short time before death, the churning sound was distinctly heard through the stethoscope; but it was much feebler, and more confused than in the early part of the day.

In reply to a question by the coroner, Mr. Syme said that a post-mortem examination was "not necessary to explain the cause of death; but that, for the sake of science, it was important that there should be one made." Immediately after the inquest, at the request of Dr. Willis, in his presence, and with the concurrence of the relatives, I made an anatomical inspection of the body.

General Appearance. The body was much emaciated. Some very slight indications of incipient putrefaction were present.

Neck. The great vessels of the neck were uninjured. The skin was carefully dissected away from the parts through which the needle had passed, when it was found that a vein, running almost exactly in the mesial line upwards and downwards, was the vessel which had been injured.[1] Its coats were thickened and rigid. Its calibre was such as readily to admit a bougie, of the size of a crow-quill. It had been transfixed by the seton-needle, which had made a gap in the anterior wall, leaving posteriorly about two-thirds of the rigid tube uninjured.

The diseased vein which had been wounded, came down nearly in a straight line from the under surface of the chin; about the lower third of the neck, it began to diverge to the right, till it joined the external jugular immediately above where that vessel dipped to join the internal jugular vein, under the sternal origin of the sterno-cleido-mastoid muscle.

Chest. The lungs were considerably gorged, and entirely filled the cavity of the thorax. There were strong pleural adhesions posteriorly, but none anteriorly, on both sides. Before proceeding with the examination, double ligatures were applied to the venæ cavæ. The heart occupied a large space. The right auricle had an elastic feel, and before it was opened it was evident that it was distended with air: the left auricle was flaccid. On pushing a scalpel into the right auricle, a small quantity of blood bubbled out, with at first a slight hissing noise. On fully opening up this chamber of the heart, the contents were found to be partially congealed blood, intimately mixed with bubbles of air. They were very numerous, notwithstanding the air which had escaped by the opening made by the scalpel. Most of these bubbles of air were about the size of a millet-seed; but a few of them were as large as small shot. There was also, in the right auricle, one small, pale, consistent, fibrinous clot. The pulmonary artery was likewise filled with blood and air intimately commingled: it did not contain any clots. Saving the presence of a minute quantity of fluid blood, the ventricles were empty. If permitted, I would have examined the veins over the whole body, and also the brain and liver. Unfortunately, the length of time occupied in exploring what has been described, rendered the relatives impatient, and made it necessary to close the inspection.

I am not aware of any recorded case of death from the entrance of air into a vein, so full of instruction as that now detailed; and probably this is because in no other instance was the opportunity for observation so long, and so ample. If an experiment had been deliberately planned, and skilfully performed, it could not have shed more light upon the subject. The characteristic and immediate effects were strikingly exhibited: they subsided; and then the secondary or asphyxial phenomena became equally well manifested. The first shock which the vital functions sustained, was caused by the rapid distension of the right auricle and its inability to contract upon its elastic contents. Had the dis-

[1] This vessel was the anterior jugular vein. In place of a single vein, there are generally two. Professor Schuh of Vienna, in his paper from which I am about to quote, incidentally states, that upon one occasion, in performing the operation of tracheotomy, he opened the middle jugular vein, and that some air was drawn into the circulation. The effects produced are not stated.

tension been a little more complete and rapid, instant death would have been the result. As it was, the heart partially regained its power; and although the condition of the heart, and frothy blood in the auricle, pulmonary artery, and its branches, produced an obstruction to the passage of the blood through the lungs, adequate ultimately to induce fatal asphyxia, the obstruction was yet sufficiently moderate to enable us to analyse all the phenomena as they presented themselves, and to point out to us, that had this obstruction been still more moderate, the difficulty might have been surmounted, and recovery from the accident might have occurred.

The history of this case clearly shows, that in such accidents, after the first danger is over, the patient may perish from asphyxia, induced by a gradually augmenting pulmonary obstruction. What I saw in this case, along with a careful reperusal of Mr. Erichsen's experiments (*Edin. Med. and Surg. Journ.* Jan. 1844,) has fully satisfied me that, in a large number of the deaths which occur from the entrance of air into the veins, asphyxia is the principal and immediate cause of death. It may be stated as a conclusion from this case, from numerous other cases, and also from experiments on animals, that if the first shock of the accident be got over, *the degree of subsequent immediate danger is in proportion to the amount of obstruction to the passage of the blood through the lungs.*

More remote subsequent danger may arise from inflammation of the lungs. Some of the animals which I experimented upon, recovered from the immediate effects of the introduction of air, but ultimately died from pneumonia.

On the other hand, when death takes place after the lapse of a week or ten days, the fatal result may be wholly independent of the entrance of air, and may depend upon purulent matter entering the circulation at the seat of the operation. In a case recorded by Professor Schuh, of Vienna, in a paper on Steatomatous Tumours, published in the *Deutsche Klinik* for 6th April, 1850, this actually happened. During the removal of a steatomatous tumour from the neck, a sound was heard resembling that known to be caused by the entrance of air into a vein. A finger was immediately placed upon the spot at which the air was supposed to have entered, when the sound ceased. No remarkable symptoms were witnessed in the patient. After a pause, the operation was resumed, when, a second time, air was heard to enter, and was in a similar manner a second time as promptly arrested. The effects were slight, but characteristic. I subjoin the history of this interesting case, as it has not yet appeared in any of the English or French medical journals.

Case. *Entrance of Air into the Subclavian Vein, during an Operation: Survival for ten days: Purulent Deposits.*

A tanner, aged 50 years, had been three times operated on for a swelling in the region of the right pectoralis major muscle. The last operation had been performed three months ago, but the disease had returned. He had a tumour of the size of two fists: it was painless, had a very uneven surface, and was firmly connected with the pectoral muscle; it extended very nearly to the clavicle, and could not be moved

by drawing aside and raising the arm. The skin over it presented cicatrices, (the result of former operations), extending as far as the axilla, and inseparably united with the substance of the tumour. The consistence was generally hard; but two of the most projecting lumps were soft, very elastic, and apparently fluctuating: the skin over them was healthy, and moveable. An examination from the axilla shewed an unevenness and hardness on the posterior surface of the pectoral muscle. As the patient persisted in his resolution to have the tumour removed, Dr. S. loosened the mass, and removed the greater part of the pectoral muscle, which was inseparably united with it. While Dr. S. was endeavouring to divide the last remaining attachments of the growth, at the lower edge of the clavicle, and for that purpose was pushing it upwards, and somewhat dragging on it, he suddenly heard *the sound of the entrance of air into an opening in the subclavian vein, without hæmorrhage.* He immediately placed his finger on the spot where he had last cut, and watched the patient. He was already recovered from the insensibility produced by chloroform, and shewed no signs of the entrance of air. There was not even any change in his countenance. There was, indeed, some inclination to vomit; which, however, as well as the slow pulse, Dr. S. ascribed to the chloroform. The operation was concluded, and an assistant was directed to keep up pressure with his finger. Dr. S. endeavoured to apply a ligature; but, as soon as the finger was removed, the blood gushed out in such quantity as to render it impossible to see the wound. A small compress was then laid above the clavicle, another pushed under it, and the two were held together by Hesselbach's compressorium. In two hours, being summoned on account of hæmorrhage, Dr. S. removed the compressorium, and was about to introduce his finger under the clavicle. Before he could do this, air was again distinctly heard to enter the vein. He felt the pulse immediately, and found it *much accelerated, very weak, and extremely irregular; but this continued only a few seconds. At the same time, the patient felt slight nausea, and inclination to vomit:* but these symptoms passed away with the acceleration of the pulse. Hæmorrhage was restrained by the application of Dupuytren's intestine forceps, which were left on for forty-eight hours.

On the first days after the operation, the patient felt well, with the exception of unquenchable thirst; the pulse was normal. *Fourth day.* Slight sopor; delirium at night; pain in the chest; and difficulty of breathing. *Fifth day.* The wound was dirty, and moderately inflamed; heat of skin normal; the right arm was much warmer; and the pulse, on this side, not accelerated, but stronger. The muscles of the right forearm exhibited involuntary contractions. There was great thirst, and the head was warm: the urine was normal. *Sixth day.* Wound cleaner; pulse normal; thirst great; tongue covered with a white fur. The patient had a feeling of exhaustion, and of great heat, although the skin was only of normal warmth. Right arm hot; muscular contractions fewer. Pain in the left axilla; head warmer; sleep interrupted by dreams; urine very thick. *Seventh day.* Night restless, from severe pain in right knee, increased by the least motion, or pressure: wound clean; head and right arm warmer, the other parts of normal warmth: pulse normal; thirst great; urine thicker; frequent complaints of cold.

Eighth day. Delirium in the night. The left knee very tender, and swollen about the patella; the right knee had also begun to be painful, without exhibiting any swelling. Wound clean; eye coloured yellow; pulse slightly accelerated; heat of skin, normal, except in head and right arm, in which last frequent subsultus was observed. The patient suddenly lost his power of speech, and had a grinding motion of the lower jaw; the movements of the sound hand were unsteady, and there was a red painful swelling on the left fore-arm. There could be no doubt now of the presence of purulent deposits. Speech returned in the afternoon. The patient was very loquacious, and laughed at his own figure, during his delirium. *Ninth day.* Pulse somewhat accelerated; heat of skin increased over whole body. The patient was bathed in sweat; did not speak; and had a sunken countenance, with yellowness of the face. There was œdema at the inner side of the right upper arm; respiration accelerated; urine suppressed. No pain was produced by pressure in the region of the wounded vein. *Tenth day.* The patient died.

Post-mortem Appearances. The subclavian vein was plugged with a clot of blood, commencing at the wound, and extending two and a half inches towards the axilla. The coagulum had already undergone purulent softening in the centre. The length of the wound in the vein, which was plugged by coagulum, was two or three lines. The fibrinous coagula in the heart were of a yellow colour. At the apex of one of the lungs, there was a metastatic deposit of the size of a nut. The left knee-joint contained pus, which was also found in the cellular tissue of the left fore-arm There were two ounces of clear serum in the lateral ventricles of the brain. (*Deutsche Klinik*, 6 April, 1850.)

Conclusions. From the preceding cases, experiments, and arguments, some important pathological facts and practical lessons clearly flow. The subject becomes simple both in theory and practice. In the three following paragraphs, an attempt is made to give the essence of the previous pages.

1. The entrance of air into the veins does not necessarily give rise to exactly the same symptoms; the intensity of the effects depending upon the degree in which the action of the right side of the heart is arrested or impeded by its over-distension, and upon the degree of asphyxia induced by the impediment to the passage of the blood through the lungs.
2. The indications of treatment are threefold; *first*, to relieve the distended right auricle: *secondly*, to treat the impending or actually present asphyxia; and *lastly*, to prolong life by every possible means, in the hope that the air may be all absorbed, and the passage of the blood through the small vessels of the lungs again be made easy.
3. In the most rapid class of cases, in which death is suddenly threatened from paralysis of the heart from over-distension, we must first strive to relieve the organ from that condition; when the phenomena are chiefly those of asphyxia from more gradually increasing obstruction in the lungs, the various means for treating asphyxia must be resorted to, and among these, in many cases, I believe the alternate use of the hot and cold douches will be found to be very valuable, especially if com-

bined with stimulants judiciously varied and skilfully administered externally and internally. In many cases, repose, dashing cold water in the face, keeping the surface warm, and TIME may be the only means which ought to be used. The case furnished to me by Sir B. C. Brodie clearly establishes this latter position.

Being now disembarrassed of much matter, which might (had this section not been prefixed) have inconveniently obtruded itself upon our notice, we are prepared to enter upon the discussion of the topics more immediately referred to in the title of this paper.

II. STATEMENT OF FACTS PROVING THAT THE ENTRANCE OF AIR BY THE OPEN MOUTHS OF THE UTERINE VEINS MAY CAUSE DANGEROUS SYMPTOMS, AND EVEN DEATH. HISTORY AND CRITICAL EXAMINATION OF SOME OF THE ALLEGED CASES.

Legallois, in 1829, when experimenting upon animals, with a view to elucidate the effects of loss of blood, and abstinence, during gestation, observed, in three different cases, that air penetrated into the vena cava inferior and uterine veins; and that this was followed by instantaneous death. He was naturally much struck with the coincidence; and properly connecting the two circumstances as cause and effect, he has asked, in the memoir which contains the experiments referred to, whether, in some of those sudden and unexpected deaths which have occurred after delivery, and in which no explanatory lesions have been found on dissection, the entrance of air into the veins has not been the cause of death?[1] Ollivier has also suggested a similar explanation of certain cases of sudden death after parturition.[2] In my Graduation Thesis, published at Edinburgh in 1837, in noticing these opinions of Legallois and Ollivier, I made the following remarks: "There are various circumstances which render it possible, that in some instances in which women die unexpectedly after parturition, when all seems to be going on well, death is owing to air entering the circulation by means of the open mouths of the veins communicating with the uterine sinuses. These orifices, immediately after the separation of the decidua, are very large. They have been made the subject of investigation by many modern as well as old anatomists and obstetricians; and, upon the whole, the various descriptions correspond. Burton (writing in 1751) says, that the uterine sinuses in the ninth month of gravidation are so large as to admit the end of the biggest finger; and their orifices that open into the cavity of the womb will at the same time admit the end of the little finger. (*New System of Midwifery*, p. 19, Ed. 1751.) Now, the uterus not unfrequently contracts and expands alternately with considerable energy after the expulsion of the fœtus; and it is quite reasonable to suppose, that air may sometimes be sucked into the gaping mouths of the uterine vessels, in sufficient quantity to prove fatal to a woman exhausted with the fatigues of labour."[3]

Thirteen years have elapsed since the Thesis now quoted from was published: but, though during that period numerous systematic trea-

[1] LEGALLOIS. Ann. Hebdom. de Méd. t. iii, p. 183. Paris: 1829.
[2] OLLIVIER. Dictionaire de Méd. Art. *Air*. 2nd Ed. Paris.
[3] Op. cit. p. 18.

tises on Obstetrics have appeared, I am not aware that in any one of them even a single line has been devoted to this subject. Being convinced that, notwithstanding this remarkable neglect, the subject is one of great practical importance, as well as of deep scientific interest, I again bring it before the notice of the profession, trusting that the meagreness of the information to be communicated may be largely supplemented by others, of ampler experience, to whom the following considerations are respectfully addressed.

Many authors refer to this sucking in of air by the uterus, without however in any way connecting it with the immediate subject of this paper; but it may be sufficient to give a single quotation from a recent work. The following passage is from Dr. Charles Meigs' *Letters to his Class, on Females and their Diseases.* "I have," he says, "often been present at the discharge of large quantities of gas from the genitalia. A woman shall be seized with her first labour-pains, and, bearing down with great violence, thrust not the child only, but the placenta also forth upon the bed; and in bearing down with the violent force of the labour-tenesmus, she pushes the very womb itself to the bottom of the pelvis, shortening the vagina in so doing, wrinkling and crushing it down to the os magnum. As soon as the tenesmus is over, the resiliency or elasticity of the tissues recovering its power, the womb rises again to a certain height within the excavation of the pelvis; but, as it is a cul-de-sac that rises, it is natural for air to follow it, and the vagina and the womb itself may thus contain air that has been drawn up within them, upon the same principle as that which makes it follow the movement of a piston in a cylinder. Then comes a new pain—an after-pain; or else I may apply my hand to the hypogastrium, and make sure of a good contraction of the womb. If I compress the womb with my hand, and particularly if I push it downwards in the pelvis, I am very apt to cause a quantity of air to rush out at the ostium vaginæ, with considerable noise. This I have heard a great many times. So, in making the examination *per vaginam*, when the uterus is very low down, or when, in making use of the speculum, I push the os tincæ far away from the os magnum, air enters the passage, and follows the retreating womb. If it be left there, and the woman be seized with a fit of coughing, or if she move quickly, or change her position, the air is pressed out with the sound of the *pet-vaginal.* There is no other way to account for it that is reasonable. So, also, a woman has a heavy womb, with a large loose vagina; she lies on the couch or bed; and the uterus retreats, as La Motte says, drawing air after it; but she rises, or coughs, or turns, and the air is expelled" (p. 289).

If it be admitted, that air is drawn into the uterus in the way described, what ground is there for supposing that it may thence pass by the uterine veins into the vena cava, and so on to the right auricle of the heart? The uterine veins, it must be remembered, are large canals, some of them with open mouths, sufficient to admit the little finger. Nature generally closes them firmly by a coagulum; but an accession of hæmorrhage may dislodge this; or the coagulum may contract and fall out, and thus leave the orifices of the veins patent. This accident may occur hours, days, or, in some exceptional cases, even weeks after delivery.

Of the freedom of the communication between the cavity of the womb after delivery, and the vena cava inferior, any one may be informed by the most cursory examination of the parts on the dead body of a puerperal woman. Dance says, in his Essay on Phlebitis; "If even a thick injection be thrown into the vena cava inferior below the emulgent veins, it is immediately poured forth in abundance into the cavity of the womb, and overflows from the vulva; thus proving, that after delivery, the large uterine veins are open in the uterine cavity, and communicate freely with the large abdominal veins."[1]

It might, therefore, be anticipated, *a priori*, that air might get into the vena cava, and so onward to the heart of a woman recently delivered, by being sucked into the uterus by the sudden dilatation of that organ, and by thence passing into the orifices of the uterine veins. When the uterus is relaxed, these large openings are gaping, the structure of the parts effectually preventing apposition of their parietes. Unless closed by a plug of coagulum, they are (as I have satisfied myself by examination) perfectly patent. If any obstacle exist,—such as a large clot, or contraction of the circular fibres of the cervix, or of the sphincter of the os uteri, after the air has rushed into the relaxed uterus,—it must, of necessity, be propelled into these openings, should the body of the uterus contract without being able to force the air through the os. I have repeatedly seen the womb, after delivery, become inflated with air; and when the organ has contracted, I have heard the air hissing through the vulva. I have, therefore, not only no difficulty in believing, but am constrained to admit, that, should any impediment be offered, in such cases, to the free exit of the air by the os uteri, it must be forced into the uterine veins, were their mouths not protected by coagula; and thence it would rapidly pass, by the current of the circulation, up the vena cava into the right auricle.

But, that cases of this kind *may* occur, is not all. They have occurred; though, from attention not having been sufficiently drawn to the possibility of such accidents, fewer may have been recognized than have actually occurred. At the same time, it seems probable that the accident is a very rare one.

Dr. Collins of Dublin, Dr. Murphy of London, and others, long in extensive practice, inform me that they have never seen such an occurrence as the death of a woman from the entrance of air into the uterine veins. Dr. Lever, however, who views the matter in a different light, has addressed to me the following letter.

"12, *Wellington Street, London Bridge, March* 16, 1850.

"My dear Sir,—When in Ireland, my library was cleaned; and, in consequence, my papers became so disarranged that I am unable to lay my hand on the rough notes of the cases about which we were conversing, and have therefore to trust entirely to memory. All the women were multiparæ; the labours had not been over-tedious; the placentæ were thrown off without assistance; and an inert state of uterus, with hæmorrhage, ensued. This viscus seemed like a softened India-rubber bottle: and the period at which the air was *supposed* to have entered it, was when the hand was withdrawn from the abdomen, after employing

[1] Dance. De la Phlebite. Arch. Gén. de Méd., t. xviii, p. 481. Paris: 1828.

forcible compression. There was an accompanying noise, very similar to that heard when a caoutchouc enema bottle is squeezed, and then allowed to fill with air; in fine, I may describe it as a rushing sound. All three patients died speedily; the quantity of blood lost not being, in my opinion, sufficient to account for death. Two were examined; one in cold weather, the other in the very height of summer. The latter presented signs of commencing putrefaction. In neither was there any large quantity of blood in the uterus; but in the sinuses, uterine veins, spermatic veins, and left renal vein, there was indubitable proof of air. This, in the former case, emitted no offensive smell when liberated. All these women had been exposed to marsh malaria; and all had enlarged spleen. I am grieved to furnish you with so meagre a report: but I cannot do more from memory.

"Believe me, dear Sir, yours very truly, JOHN C. W. LEVER."

I have now to mention cases, which have been minutely described.

CASE. *Sudden Death following injection into the vagina of chloruretted water in a case of uterine hæmorrhage. On dissection, discovery of the appearances which are characteristic of death from sudden Entrance of Air into the Veins.* The following case is detailed by Dr. J. Bessems, of Antwerp; and his explanation of the cause of death is similar to that which I adopt.

On the 14th October, 1841, a woman, aged 35, suffering from uterine hæmorrhage, was admitted into the hospital of St. Elizabeth, under the care of Dr. Bessems. She was the mother of three children. When at the fifth month of her fourth pregnancy, she had some flooding, in consequence of strong mental excitement; medical assistance was called in, but abortion took place on the 10th of October, between three or four days before her admission into the hospital. Being alone, she pulled the cord, and broke it. A midwife afterwards arrived, who introduced the hand to complete the delivery; but, being baffled in her attempts, she withdrew. The patient remained in this state, without hæmorrhage, till the 14th; when, in consequence of a great loss of blood, she was taken to the hospital. On admission, her general condition was tolerably satisfactory: the face was slightly pallid; and the pulse, though of adequate strength, was a little too rapid. On examining the abdomen, no marked symptom presented itself, except the large bulk of the uterus, which was very appreciable in the hypogastrium. The cervix, which was very soft, was still open; two fingers were easily passed up to the placenta, but, although the attempt was assisted by the contractions of the uterus, it was not found possible to drag out the mass, which had perhaps formed adhesions with the internal surface of the organ. By means of Levret's forceps, some very small portions of the placenta were got away. The hæmorrhage had at this time almost ceased. Dreading to irritate the womb too much by prolonged manipulations, Dr. Bessems injected into its cavity slightly tepid water, and prescribed other measures, which are merely alluded to as being those ordinarily employed in such cases. On the 15th, the following day, the state of the patient seemed to be better. She had lost no more blood; and the pulse was firm and tranquil. The gentleman in attendance (M. Stevens) having tried in vain to ex-

tract the remainder of the placenta, prescribed chloruretted injections, which were administered in the morning, at noon, and in the evening, by the surgeon in attendance, by means of a gum-elastic catheter placed within the womb, and adapted at its other end to the pipe of a syringe filled with the fluid to be thrown in, all bubbles of air being carefully excluded. On the 16th, little change took place, and the treatment was continued. In the night between the 16th and 17th, the patient had (about 4 A.M.) considerable hæmorrhage; at 8 A.M., the hour of visit, it had ceased; but the countenance was perceptibly paler, and more yellowish, and the pulse was smaller, and more rapid. By digital examination, the cervix was found dilated as formerly, and the placenta was somewhat engaged in it. Some fragments were removed, and the chloruretted injection was repeated, with the same precautions as had been adopted on the two previous days. In an instant, the patient, who had been lying in bed, sprang into the sitting position, with her arms extended, crying out that she was being suffocated. The head was thrown backwards; the face became livid; the eyes were convulsively turned upwards; and the expression became fixed. From some convulsive movements of the throat, it was for a moment believed that she was in an hysterical condition. But respiration became jerking, and slower and slower; the body fell backwards; the pulse fled; and, in spite of aspersion with cold water, and the putting in force of the usual means of restoring from syncope, she was dead in three minutes from the time when the injection had been thrown into the uterus.

Dissection, twenty-eight hours after death. The body was stiff, and presented no trace of putrefaction. Nothing morbid was found upon examining the peritonæum, and the abdominal viscera. The womb was as large as a good sized fist; and in its texture there was no trace of inflammation or suppuration. Its cavity still contained a portion of placenta of the size of a hen's egg, partly detached, and partly strongly adherent. The inferior vena cava was distended, and contained in its abdominal portion several bubbles of gas of considerable size, which could be distinctly seen through the parietes of the vessel. The pleura, lungs, and pericardium, were healthy. The heart appeared large; but, on examining it more carefully, it was seen that the increased size principally depended upon the *distension of the right cavities, which exhibited an elasticity of a peculiar character. The vessels leading to and from the heart having been tied, that organ was opened under water, when there escaped a large quantity of gas mixed with blood.* The encephalon presented no morbid appearances.

Dr. Bessems, from the state of the right side of the heart and of the great vessels leading thereto, does not hesitate to ascribe the sudden death to the entrance of air into the circulation, by the uterine veins. It may be asked, If no injection had been practised, and no possibility had existed of air entering the circulation in the way conjectured, might not an anæmic woman have died as suddenly, and in precisely the same circumstances, from syncope? The anæmic condition of the woman was, we cannot doubt, a predisposing or accessory cause of the fatal issue, inasmuch as anæmia is of itself sufficient to induce irregular action of the heart, and adequate to render disturbing agencies, which

would be harmless in a normal condition of the blood, suddenly fatal. When, along with the anæmia induced by loss of blood after parturition, there is a diseased heart—softening of the tissue, or some structural change in the valves—it is easy to conceive slight causes, mental emotions for instance, which have not been disclosed by words or outward acts, all at once bringing the action of the heart to a stand, and perplexing the attendants by the abrupt termination of apparent convalescence in sudden death. Numerous instances of sudden death after parturition, and when all seems to be going on well, certainly depend upon the facility with which trifling causes may disturb the circulation in women with diseased heart, and suffering from recent loss of blood. In the case of Dr. Bessems, a similar explanation might have been sustained, had the narrative been less circumstantial, and had there been no record of the appearances found on dissection; but, with the facts before us, we must believe that, however much other causes may have been accessory or predisposing, the injection of air into the uterine veins was the immediate cause of death. This is established by the distended condition of the right auricle, and by the large quantity of air found in the vena cava inferior.

M. Lionet, of Corbeil, has published a case, which claims attention in this place.

Case. *Sudden Death after Natural Delivery, without known cause: Air in the Veins.* A lady, aged 27, of ordinary height, stout, fresh, and well-looking, but very excitable and subject to attacks of hysteria, in the eighth month of her pregnancy, while looking at her husband who was getting into a carriage, saw the horse fall down; she uttered a cry of terror, became very pale, and lost, at the instant, the power of speech. The midwife first made her use a pediluvium, then an entire bath. The aphonia persisting, M. Lionet was summoned three or four hours after the accident. The power of motion and the intellect were unimpaired; the patient made herself understood by signs or by writing. A copious bleeding, and several cups of infusion, having failed in restoring the voice, at the end of five or six hours, a large sinapism was applied to the cervico-dorsal region. The pain was so acute, as to cause convulsive movements; but speech was this time restored. The pregnancy continued its natural course, and the movements of the fœtus were felt until the appearance of labour-pains, twenty-three days after. The midwife only observed that the patient was paler and more feeble than usual: she had to be carried to bed. The os being very slightly dilated, the midwife left the patient for some time; on returning in about half-an-hour, she found the head in the vulva, and the child, although well-formed, was born dead. The placenta soon followed; the uterus contracted properly, but the patient's strength did not return; she remained extremely pale, and the midwife, having exhausted her resources, sent for M. Lionet.

He did not see the patient till three hours after her delivery; she was extremely pale, was making efforts to vomit every minute, and breathed with difficulty. The circumstances attendant on the delivery were related to him; he was assured that there had been no hæmorrhage, and, on examining the linens, they did not seem to have imbibed an unusual quantity of blood. The uterus formed an ovoid mass, which

raised the abdominal walls; a little serous exudation escaped from the vulva. On introducing the hand into the cavity of the uterus, M. Lionet found a few clots; and, fearing that a rupture had occurred, he used a cold injection. He removed the pillows, so as to place the patient in a horizontal position; and he compressed the aorta, not only with the view of arresting the hæmorrhage, supposing that a rupture had taken place, but also to favour the flow of blood to the head, and to the heart, the pulsation of which was irregular. The hands were plunged into a warm mustard bath, and cordial drinks and an ether draught were administered: ammonia and hot friction were applied externally. The patient constantly complained of being suffocated, calling for air, or she should die. In an hour, M. Lionet sent for Dr. Petit, sen., who again examined the uterus. The patient expired under their hands, after two hours of constant attendance, five hours after being delivered, without having experienced any relief, beyond the grateful impression of the currents of air which were directed in her face.

The child was of average strength, and well formed; its limbs were contracted and rigid, as if they had just been convulsed; and this contraction lasted for eight or ten hours after its expulsion.

The Post-mortem Examination was made about thirty hours after death, at a temperature of 12-14 R., by MM. Petit, sen. and jun., Surbled, and myself. The body was of a yellowish white, like wax. The stomach and intestines were distended by a large quantity of gas; the mucous membrane was pale, and perfectly healthy. The uterus was slightly ecchymosed at the sides; it presented no trace of laceration, and contained no clots; when water was introduced, it did not escape by any aperture, although the organ was strongly compressed. The surface where the placenta had been attached had a velvety appearance, and exhibited a large number of venous sinuses, without any appearance of rupture.

The vena cava seemed to be enormous, and of a slaty appearance; but as it had been wounded by the scalpel in removing the uterus, the nature of its contents could not be determined. In the supposition that it might contain air introduced from the uterine sinuses, the investigations were directed to ascertain this fact. Having found nothing of importance in the chest, the heart was carefully examined: some bubbles of air mixed with a small quantity of blood were found in the ventricles, especially in the right. On lifting the calvarium, the arachnoid appeared raised by small transparent patches, which were recognised as bubbles of air; they were easily removed by pressure. The membranes and vessels were but slightly covered; and, in several of the veins ramifying among the cerebral convolutions, small columns of air separated by columns of red blood were seen: on pushing these with the finger, they could be united, so as to give to the veins the appearance of fragments of vermicelli, several centimètres in length. The same appearance was observed in the veins at the base of the brain. The veins in the limbs were not examined. The following then is a summary of the appearances observed:—No appreciable lesions in the uterus or other viscera; air in the heart, perhaps in the vena cava, and certainly in several of the cerebral veins.

M. Lionet, after various remarks, puts this question; can it be ad-

mitted that, in the anæmic state of the patient, the uterine sinuses being empty of blood and not plugged with clots, the introduction of the hand favoured the admission of air during uterine inertia? He replies —I do not know whether this be possible: it is for physiologists to determine. (*Journal de Chirurgie*, 1845, *p.* 234.)

Case. *Rapid Death after Parturition. Death attributed to the Entrance of Air into the Uterine Veins.* Dr. Wintrich, in 1848, communicated to the Medical Society of Erlangen a case of rapid death after parturition, which he attributed to the introduction of air into the uterine veins. Death was preceded by some convulsive movements and suffocation, which symptoms followed the expulsion of the infant and the partial separation of the placenta. Dissection, we are told, satisfactorily demonstated that air had penetrated into the venous system by the uterine veins.[1] I regret that I have failed in obtaining the original record of this case, and that I am only able to give this very meagre abstract from a French journal.

Professor Simpson has communicated the following remarks, as an appendix to Dr. John Reid's *Essay on Death from the Entrance of Air into the Veins*:—

"Several years ago I saw", says Professor Simpson, "a case of death a few hours after delivery, which first gave me the idea that death may sometimes occur from the introduction of air into the uterine veins. The patient was an inmate of the Lying-in Hospital, and was delivered of twins. Dr. Ziegler was called to see her, in consequence of some difficulty connected with the birth of the second child. Post-partum hæmorrhage, with alternate contractions and relaxations of the uterus, supervened; and she seemed to rally very imperfectly from the effects of the flooding. I saw her in an hour or two afterwards. She had then a very weak and rapid, almost imperceptible pulse; an extremely anxious countenance; and here and there was an evanescent scarlatinoid rash over the surface of the body. The body was opened a few hours after death, as we were anxious to know if there was air in the veins; and we were, of course, desirous not to incur the fallacy of air arising from decomposition. The abdominal contents were exposed under water. The uterine and hypogastric veins, and lower vena cava, were full of frothy blood, and the air bubbled up. The large veins of the extremities were in the same state."

Nothing is said of the condition of the heart and lungs; the only organs in which the characteristic and certain evidence of the accident having caused death is to be found. The mere presence of air is no proof that it has caused death.

Dr. Simpson has the following remarks upon the mechanism of the introduction of air in such cases. "I think we can understand it, when we remember that the interior of the uterus after delivery, especially opposite the late seat of the placenta, is studded with venous orifices; and that, if air does once become introduced into the uterine cavity, from relaxation of the walls of the organ, it will be liable to be *forced* into these orifices, and hence into the general venous circulation, pro-

[1] Journal de Médecine et de Chir. Prat., Nov. 1848, p. 609.

vided the uterus, in again contracting, is unable to expel its contents through the os uteri."[1]

The cases and comments of Professor Simpson are chiefly valuable as an intimation from so eminent an authority that the ideas of Legallois, as to the reality of this accident, deserve credit. The cases may or may not have been, though they probably were, examples of the accident. It must be felt that the descriptions are not absolutely convincing; for the symptoms, during life, are not sufficiently detailed, and the frothy blood in the uterine veins, hypogastric veins, and vena cava inferior, can with difficulty be understood, except by supposing that, notwithstanding the short time which had elapsed since death, when the body was examined, some decomposition of the blood, and evolution of gases, had commenced. In experiments on animals, and in cases in the human subject, in which rapid death has followed the introduction of air into the veins, frothy blood has only been found in the right side of the heart and pulmonary artery: in other parts of the body, the air, if found at all, has not been intimately mixed with the blood, but has existed in distinct bubbles. This is easily understood; for it is the churning of the struggling heart, unable to propel its elastic contents along the pulmonary artery, which causes the frothing of the blood.

It would be endless to relate all the cases, which might be cited as furnishing a strong probability that air had entered the uterine veins after delivery, inducing, in some instances, transient, but alarming symptoms; in others, occasioning almost mortal effects, and in others, causing, or, along with uterine hæmorrhage, contributing to cause sudden and unexpected death. Such cases would not furnish data of sufficient accuracy to support, far less on which to found conclusions. Some of them, however, have seemed to be entitled to the consideration which they have received in this paper.

This seems to be the most convenient place to notice the *red appearance of the skin*, which is described as having occurred suddenly in some cases of the entrance of air into the veins. Dr. Warren of Boston relates two cases which occurred in his own surgical practice. The first patient recovered, after being insensible for a considerable time. While still comatose, "the leaden colour in the cheeks", says Dr. Warren, "assumed a *reddish* tinge, and the alarming character of the symptoms was evidently diminished." In the second case, during the period elapsing between the entrance of the air, and the death of the patient, says Dr. Warren, the "livid colour of the cheeks gave place to a suffusion of *vermillion red*, and no glow in the cheek of a youthful beauty ever gave one so much pleasure as that flush. But the flush soon passed off:" and the patient died.[2]

In several cases of death occurring two or three days after delivery, (some of which had been considered as malignant scarlet fever, by the medical attendant), Dr. Simpson states, that "a red or scarlatinoid eruption was seen upon the cutaneous surface of the patient." In the

[1] Reid (Dr. John). Physiological, Anatomical, and Pathological Researches, pp. 579-80. Edinburgh: 1849; also in *Edinburgh Monthly Journal*, April 1849, p. 707.

[2] Warren, Dr., in *American Cyclopædia of Practical Medicine*, as quoted by Dr. J. Y. Simpson in *Edinburgh Monthly Journal* for April 1849, p. 707.

case quoted from Dr. Simpson, at p. 946, which is the only one of the kind fully detailed, there was post-partum hæmorrhage, and "an evanescent red scarlatinoid rash over the body." Dr. Simpson asks the following question: *If the red or scarlatinoid rash, which appeared in the preceding obstetric case upon the surface of the skin, were owing to the entrance of air into the uterine veins, might this symptom be accounted for on the idea, that the introduced air directly mixed with, and oxygenated, the blood in the capillary vessels?*

The "rash" described by Dr. Simpson, and the "reddish tinge" and "suffusion of vermillion red", mentioned by Dr. Warren, may or may not refer to the same phenomenon, but it seems reasonable to infer that they do; and such is evidently the opinion of Dr. Simpson. Granting that the red appearance was in all the cases of the same nature, granting likewise that air had entered the veins, granting even that it had caused death, I am not prepared to admit that, necessarily, the red appearance was the result of the entrance of air.

My difficulty in connecting the two phenomena, as cause and effect, does not arise exclusively from *a priori* reasoning on the subject, but from what I have recently seen in three cases, in none of which, I believe, air existed in the veins; and in one of which, at least, the entrance of air was impossible. I now notice these cases, in the hope that others will, when opportunities occur, make and record their observations, with the object of elucidating this point. In the mean time, the elements on which to found a positive or exclusive opinion are wanting; and as a contribution towards the facts required, and as my reason for not answering Dr. Simpson's question in the affirmative, the following particulars of the cases referred to are here subjoined.

About twelve months ago, I was entering one of the quadrangles of St. Thomas's Hospital with Mr. Solly, when he was suddenly hurried into one of his wards where a man, (labouring under syphilitic disease of the larynx), was urgently suffering from want of breath. Tracheotomy, being imperatively called for, was quickly resolved on and performed; and the patient was, for the time, at once relieved from the distress and jeopardy of his position. This relief, however, was of short duration, for in two or three minutes after the tube had been introduced, the man gave a sudden movement, which dislodged the tube from its position in the windpipe. From the tube being plugged up with clotted blood, and from other unavoidable causes, several minutes elapsed before air could again be made to enter the lungs through it. The visage became leaden-coloured, the tongue protruded, the teeth were clenched upon it, the face was convulsed, the pulse disappeared from the extremities, and at last the whole body became pulseless and cold. The man lay for some time cold, with bloated visage, protruded tongue, and in a state of suspended animation from asphyxia. By Mr. Solly's well-directed, and persevering efforts, life was made to return. Sinapisms to the legs, the mechanical assistance of the diaphragm in expiration, etc., were the means used; and it was beautiful to observe that, when the respirations commenced, and especially as they became fuller and more numerous, warmth gradually returned to the previously ice-cold limbs, and the pulse again beat in the arteries. A more interesting and instructive spectacle could not have been witnessed. Re-

covery was complete. Now, as life was returning to this man, I witnessed exactly what Dr. Warren saw in one of his cases of air in the veins—"the livid colour of the cheeks giving place" (not steadily, but in sudden fits) "to a suffusion of vermillion red." The phenomenon in both cases was probably analogous to blushing, or was indeed mechanical blushing caused by the enlargement of the capillaries of the surface, and their sudden distension with *oxygenated* blood, in consequence of the asphyxia tending to cease, from the return of respiration and the freer passage of the blood through the lungs.

Some months ago, I had to treat a case of uterine hæmorrhage in which, immediately after delivery, an enormous quantity of blood was poured out within a few minutes, drenching the bed and flowing in streams upon the floor. There was prolonged syncope, alternating with short fits of catching and stertorous respiration, during which the countenance was for one moment ghastly pale, at another, purple, and then at intervals suffused for an instant with a deep vermillion red, which was not confined to the face, but several times appeared in transient patches upon the neck and upper part of the thorax, which happened to be exposed. The uterus was ultimately made to contract, and the patient made a tolerable recovery, and is now well and nursing her infant. I think it likely, that in this case air entered by the uterine sinuses: but, though at the moment I had the red cases of Drs. Warren and Simpson vividly in my mind, I was so impressed with what I had seen at St. Thomas's, and in another case of an entirely different character (which I then had and still have under treatment), that I adopted at the time the explanation which I now give of the rapidly-changing colours of the surface. The ghastly countenance depended on spasmodic constriction of the capillaries—the purple and vermillion replaced the pallid hue when the spasm ceased, and the capillaries suddenly became relaxed, the patches depending upon the whole exposed surface of capillary net-work not being equally and simultaneously affected with spasm, and the purple or red hue being determined by the goodness or badness of respiration at the moment. It is not improbable, as I have already admitted, that the impediment to the passage of the blood through the lungs in this case depended on the entrance of air by the uterine veins, and presence of frothy blood in the branches of the pulmonary artery; but still I think the vermillion patches cannot be explained by an affirmative answer to Dr. Simpson's question, *because a dangerous quantity of air introduced into the venous system, in place of oxygenating the blood, tends to cause a more or less complete state of asphyxia, by rendering the passage of the blood through the lungs difficult or impossible.* The tendency of the accident, even in its mildest forms, is to impede the exit of the blood from the right ventricle.

I have at present a patient, the subject of ovarian and uterine disease, who on slight emotional causes, and sometimes without any obvious cause, falls into a state of trance or unconsciousness, the duration of the seizures lasting for minutes, or sometimes for many hours. The countenance is generally placid, though, on two or three occasions, there have been spasmodic affections of the muscles of the mouth and neck, and twice violent convulsions of the extremities. However, on various occasions when I have been present, and on many more described to me, the

eyes have become suddenly fixed, the visage overspread with a deep blush, and a state of entire unconsciousness has commenced, from which no pinching could rouse her. I have watched this condition often, and have seen red patches appear suddenly on the surface, and have observed the face to become fitfully suffused with a delicate blush, superseded quickly by an extreme pallor; and these changes have generally been indicative of the fit being likely soon to terminate. Dr. Henry Bennet once saw this case with me, and witnessed such an attack as I have described. In this patient, I have seen the evanescent red on the surface so precisely similar to what I saw in the lady with uterine hæmorrhage that I adopt in both cases the same explanation, and connect it with the condition of the capillary vessels.

The idea of the red hue, in the cases of Dr. Warren and Dr. Simpson, depending upon super-oxygenation of the blood, seems at all events to be untenable; for *the effect of introducing air into the circulation in sufficient quantity to cause inconvenience, is, beyond question, to prevent the adequate aëration of the blood.* The red hue is therefore no evidence in any obstetric case, that air has entered the veins. The red appearance may possibly be often seen in cases in which air has entered the veins; but it is a phenomenon depending upon a particular state of the nervous system induced by various causes, and giving rise to a capillary relaxation, identical with the condition of the small vessels in blushing from emotional causes. It can have nothing to do with oxygenation of the blood by the air which has entered the veins.

III. DEDUCTIONS AS TO THE PREVENTION AND TREATMENT OF ACCIDENTS ARISING FROM THE ENTRANCE OF AIR BY THE UTERINE VEINS AFTER PARTURITION.

From the facts already stated, it is plain that the Treatment, both preventive and curative, is to obtain natural and permanent contraction of the uterus after delivery. As it is extremely probable that loss of blood, and the entrance of air, in many cases conjointly cause death, it is satisfactory to feel assured that the proper treatment for the one is the best also for the other, so far as the one thing primarily essential is to strive to get the uterus to contract. Plugging will also be specially proper when there is convulsive contraction and expansion of the uterus, with or without much hæmorrhage; for then there exists the greatest aptitude for the atmospheric air to enter, or be forced into the uterine veins.

If a large quantity of air have entered the circulation, unequivocal evidence of this will be found by listening to the heart, when the churning sound will be heard. If death does not almost at once close the scene, the phenomena of asphyxia will set in; their rapidity and violence depending upon the quantity of air which has entered, on its passing up to the heart in one large volume, or in divided quantities, on the presence or absence of hæmorrhage, and on the strength of the patient. The distension of the right side of the heart, and the present, or impending asphyxia, must be met by an application of the general rules given at the close of the first section of this paper, so far as they are consistent with the special circumstances of each case. In fact, there is no uniform routine practice which can be rationally recommended in this formidable class of cases. If the practitioner under-

stand the nature of the accident, he will be able to adapt his remedial measures to the emergency. The special means adopted may infinitely vary, (as in uterine hæmorrhage); but the general principles of treatment are immutable, and simple, and ought to be engraven in the mind of every accoucheur. The amount of success attending their application must depend upon the promptness, nerve, and sagacity of the practitioner.

Essex House, Putney, September 1, 1850.

ON THE GALACTAGOGUE AND EMMENAGOGUE EFFECTS OF THE LEAVES OF THE BOFAREIRA (RICINUS COMMUNIS, OR PALMA CHRISTI).

By TYLER SMITH, M.D., Licentiate of the Royal College of Physicians; one of the Physicians to Queen Adelaide's Lying-in Hospital, etc.

Dr. W. O. M'William has often mentioned to me, that he had become aware of the galactagogue properties of a plant common in the Cape de Verde islands, and expressed his intention of publishing an account of a phenomenon so novel and important. In August, just passed, Dr. M'William submitted to me a paper which he proposed to read at the Edinburgh meeting of the British Association for the Advancement of Science. Struck by the facts related in Dr. M'William's paper, and learning for the first time that the plant is no other than the *ricinus communis*, which grows as an annual plant in this country, I determined, according to Dr. M'William's wish, to ascertain whether the plant, when growing in our latitudes, preserves its remarkable properties of stimulating the mammary glands.

In Dr. M'William's interesting paper, read before the Physiological sub-section of the British Association, and subsequently published in the *Lancet* (Sept. 7th, 1850), the following description of the mode of using the Bofareira or Ricinus, the plant referred to, is given:

"In cases of childbirth, when the appearance of the milk is delayed (a circumstance of not unfrequent occurrence in those islands), a decoction is made by boiling well a handful of the *white* Bofareira in six or eight pints of spring water. The breasts are bathed with this decoction for fifteen or twenty minutes. Part of the boiled leaves are then thinly spread over the breasts, and allowed to remain until all moisture has been removed from them by evaporation, and probably, in some measure, by absorption. This operation of fomenting with the decoction and applying the leaves, is repeated at short intervals until the milk flows upon suction by the child, which it usually does in the course of a few hours.

"On occasions where milk is required to be produced in the breasts of women, who have not given birth to or suckled a child for years, the mode of treatment adopted is as follows:

"Two or three handfuls of the leaves of the Ricinus are taken and treated as before. The decoction is poured, while yet boiling, into a large vessel, over which the woman sits so as to receive the vapour

over her thighs and generative organs, cloths being carefully tucked around her so as to prevent the escape of the steam. In this position, she remains for ten or twelve minutes, or until, the decoction cooling a little, she is enabled to bathe the parts with it, which she does for fifteen or twenty minutes more. The breasts are then similarly bathed, and gently rubbed with the hands; and the leaves are afterwards applied to them in the manner already described. These several operations are repeated three times during the first day. On the second day, the woman has her breasts bathed, the leaves applied, and the rubbing repeated three or four times. On the third day, the sitting over the steam, the rubbing, and the application of the leaves to, with the fomentation of, the breasts, are again had recourse to. A child is now put to the nipple, and, in the majority of instances, it finds an abundant supply of milk.

"In the event of milk not being secreted on the third day, the same treatment is continued for another day; and if then there still be want of success, the case is abandoned, as the person is supposed not to be susceptible to the influence of the Bofareira.

"Women with well-developed breasts are most easily affected by the Bofareira. When the breasts are small and shrivelled, the plant then is said to act more upon the uterine system, bringing on the menses, if their period be distant, or causing their immoderate flow if their advent be near."

In directing the use of the Bofareira leaves, which I have procured from the Botanical Gardens at Chelsea, Kew, and the Regent's Park, I have followed as nearly as possible the description of Dr. M'William, with the exception of the application of the steam of the decoction to the generative organs. The following are the cases in which the agent has been used under my directions.

The following case was conducted by Mr. C. Stillman, one of the House Surgeons of Queen Adelaide's Lying-in Hospital.

Case I. Mrs. C———, twenty-four years of age, rather tall and thin, mother of two children, had weaned the last about six weeks, and had still a little milk, of a very thin serous character, left in the breasts. She commenced the use of the Bofareira, on the morning of Wednesday, August 21st, by bathing the left breast only, with a strong decoction of the leaves. The leaves themselves were afterwards applied to this breast. In the evening, she repeated the bathing; after which, she perceived, on squeezing the nipple, that her milk, which was at first thin and watery, had now become quite thick. After repeating the application on Thursday the 22nd, she felt throbbing pains in the breast, accompanied by sickness and pains in the back, which she described as being like after-pains, and the areola surrounding the left nipple had become much darker than the right; the glandular follicles were also larger than in the nipple which had not been under the influence of the Bofareira. The difference between the two breasts was very marked. Having at this time no more leaves, she was unable to continue the application. On the following day, a fresh supply of the leaves was obtained, and she again bathed her left breast as before. After two applications, the *catamenia* appeared, before the regular time, and the fomentations were not afterwards continued.

Case II. Mrs. H——, mother of four children, her youngest child aged one year and five months, had been weaned more than six months. During the latter months of lactation, she had little milk; the breasts were small, and the nipples contracted. Before applying the Bofareira, the breasts were carefully examined, to learn if they still contained any traces of milk. After much trial, she could squeeze from her left breast the smallest points of serum from the mouths of two or three of the galactophorous ducts, as is the case with most women who have suckled; but from the right breast not a trace of moisture could be expressed. The Bofareira was used night and morning for four days, by bathing with the decoction, and the application of the hot leaves to both breasts, in the manner described by Dr. M'William. After the second application, thick milk, like the colostrum, could be squeezed from both nipples, the breasts were considerably swollen, the glands in the axillæ were also painful, and pains extended down the arms. There were, in fact, in this case, all the symptoms present, in a minor degree, which are usually observed in the establishment of the milk after parturition. Mrs. H—— had also distinct periodical pains in the back and abdomen, which she compared to after-pains. A leucorrhœal discharge was also produced. At the end of the fourth day, milk flowed so freely into a breast-pump, that there was no doubt she could have suckled a child; but at this point the application of the Bofareira was omitted, and the milk has since gradually disappeared.

Case III. Mrs. D——, a married lady, without family, hearing of the use of the Bofareira in the last case, wished it tried upon herself. As there was no possibility of injury she was supplied with some of the leaves, and proceeded to use it. The application, and the use of the decoction, produced swelling of the breasts, pain in the back, and an increase of a leucorrhœal discharge, to which she is subject; but there was no appearance of milk in the breasts. At the time of using the Bofareira, the catamenial discharge had ceased about a week.

Case IV. M. L——, a young woman, who had been delivered three weeks, but whose milk, though profuse, was so poor as to be little more than serum, used the Bofareira three times. Under its use, the secretion from the breasts became markedly thicker; but the child was unfortunately attacked with diarrhœa, and it was not thought advisable to continue the use of this agent longer.

Case V. L. M——, a young woman, mother of one child, but who had weaned her infant about a year and a half, applied the Bofareira in the form of decoction and poultices two or three times; but the pain and swelling were so considerable, that she refused to go on with it. She had a little serum in the breasts, at the time when the use of the Bofareira was commenced. The secretion speedily became milky. This patient had a leucorrhœa, which had been present ever since the weaning; and the uterine and vaginal irritation, upon which the leucorrhœa depended, had kept up, in all probability, the serous secretion from the breasts, which is common enough in leucorrhœal cases.

Dr. M'William makes the following observations on the botanical name and characters of the Bofareira:

"The Bofareira grows in most, if not in all, the Cape de Verde Islands.

That used by the natives for the purposes I have mentioned, is called by them the *white* Bofareira, to distinguish it from what appears to be nothing more than a variety of the same species, the *red* Bofareira. The *white*, or that which possesses galactagogue qualities, is recognized by the natives by the light green colour of the stem of the leaf, whilst the leaf stem of the *red* is of a purplish red hue. The latter plant is carefully avoided, as it is said to be a powerful irritant, and if applied, as it occasionally has been, by mistake for the *white*, it produces an immediate and often immoderate flow of the menses.

"I regret not having been informed of the alleged difference in the action of the white and red Bofareiras, while I was at the Cape de Verde, that I might have examined the latter plant upon the spot.

"The seeds of each plant were, however, kindly forwarded to me by Mr. George Miller, and Sir William Hooker most readily and obligingly examined them. Sir William, in a note to me, says, 'What you mark as red Bofareira, and as white Bofareira, are both not only of the genus 'Ricinus,' but also of one and the same species—viz. Ricinus communis, the common palma Christi, or castor-oil plant. In our gardens, as well as abroad, the plants vary; and your two plants vary a little in the form and size of the seed, and especially in the colour, but they are one and the same species.'"

I have now used the leaves of the plants from the Botanical Gardens at Kew, the gardens at Chelsea, and the Botanic Gardens in the Regent's Park. At the garden in the Regent's Park, there are two fine plants, and I was struck with the red appearance of the stalk, and of the leaf stems and ribs of the leaves. The colour was nearly as deep as that of the common rhubarb. The leaves of these plants were also larger than any others I have seen. Inquiring of one of the gardeners, I was informed that there were two varieties, the ricinus communis major, and minor, and that the major was always of the same red colour. The smaller variety is of the green colour described by Dr. M'William. This probably is the explanation of the red and the white Bofareira of the Cape de Verd Islands.

Hitherto, the control we have had over the mammary secretion has not been very complete; *a priori*, there would seem no reason why we should not possess special excitants and sedatives of the mammary glands, as well as of other secretory organs. Abstinence and saline purgatives, local frictions and applications, have generally been relied on as lactifuges, when the arrest of the secretion has been desirable, either after parturition or at the close of lactation; but we have had no means of equal efficacy as galactagogues, in cases requiring increase of the milk secretion.

I believe Dr. Fleetwood Churchill has used opium as a galactophorous remedy, believing that it stimulates the mammary glands in common with the skin, while it diminishes all the secretions of the internal glands. Some persons have also given castor-oil as a purgative, with an idea that it increases the milk; but it has been thought that it produces this effect by moderating febrile excitement. In cases of arrest of the secretion from the breast in fever, and inflammatory diseases, all the febrifuge and antiphlogistic means become indirect restorers of the mammary secretion. There is a popular notion, that a fish diet produces more

milk than a meat diet. Fluids of all kinds stimulate the breasts during lactation, in common with the kidneys; but their effects in increasing the flow of milk are mechanical. It is a common plan for cow-keepers to give the milch-cows drink before milking them.

Some considerable control over the secretion of the breasts is given by the synergies or sympathies which exist between the breasts and other organs. It is known that the Arabs procure a supply of milk from their mares by irritating the vagina. In the human subject, irritation of the vagina and uterus in disease, will excite the secretion of milk. Milk is frequently found in the breasts in cases of tumours, in gonorrhœa, and in leucorrhœa. No doubt it is the irritation of the uterus during gestation, that causes the changes in the breasts incidental to pregnancy; and there is still less doubt that the secretion of milk after parturition is due to the irritation of the generative canal which obtains during and after labour. In women who menstruate during lactation, each menstrual period is accompanied by an increase, or "renewal", of the milk, as it is popularly called.

The sympathy, or synergy, between the stomach and the breasts is also very marked. After parturition, eating or drinking produces an immediate sensation in the breasts, which accompanies the after pains. Long after labour, and, indeed, during the whole of lactation, the "draught" in the breast is immediately produced by swallowing cold or hot drinks. This does not depend merely upon the passing of the fluid into the circulation, and its excretion by the mammæ. The sensation of the draught in the breasts follows too immediately upon the injection of food or drinks into the stomach, to admit of such a supposition; nor does the intensity of the sensation of the draught depend upon the quantity of drink taken, which it would necessarily do, if the circulation were the channel by which the stomach excited the breasts. It depends, on the contrary, either upon the intensity of the impression made upon the gastric nerves,—a wine-glass of hot drink, or a small quantity of ice, exciting the breast more than a hearty meal of food or drink at the ordinary temperature.

What is called the "draught", consists of two elements,—the sensation and the secretion. The sensation is a purely nervous phenomenon, and always precedes the secretion.

Another mode in which the breasts are excited to secrete, is through the influence of emotion. During the establishment of the secretion of milk after labour, the sight of the child excites the sensation of the "draught"; and during lactation, when the mother is absent from her child, the mere recollection of the infant is sufficient, in many cases, to produce it.

Mechanical irritation of the nipple is another mode of producing and increasing the flow of milk. Cases are on record in which even childless women have, by allowing the suction of an infant, had a secretion of milk established.

Does the Bofareira act according to a new principle? Has it a specific influence upon the mammary gland; or does it merely act by irritating the gland, as any other irritant would do? I believe it must be granted, that this plant has a specific galactagogue action; for it is upon irritating treatment and friction, that we depend for a diminution of the

flow of milk, when excessive, after parturition, or in weaning, at the end of lactation.

The leaves of the euphorbiaceæ all contain an acid principle. The leaves of Bofareira evidently contain castor-oil. The leaves are greasy upon the surface, and the taste of castor-oil is perceptible; but there is besides this an acid taste in the infusion of the leaves, probably depending on some essential oil. The infusion is not unlike senna in taste and smell.

Since the foregoing cases occurred, I have used the remedy in a case of scanty menstruation of a remarkable kind. Owing to exposure to marsh malaria, some years ago, the patient had scarcely a sign of coloured discharge at the usual catamenial periods. She used the infusion of the leaves of the red Bofareira at the date of her period, applying the infusion and leaves to the breasts, and the vapour to the genitals, with the effect of producing, in two days, considerable flow of the catamenia. From the effects in this case, and in one of the cases already related, the Bofareira promises to be of considerable value as a direct emenagogue; at all events the cases in which I have tried it, show that the plant does not lose its efficacy in this climate. I hope that, in America and other parts in which the plant is common, perennial instead of annual, extensive trials of its efficacy both as an emenagogue and a galactagogue, will be made.

7, Bolton Street, September 1850.

BIBLIOGRAPHICAL RECORD.

On Animal Chemistry in its Application to Stomach and Renal Diseases. By H. Bence Jones, M.D., A.M., Cantab., F.R.S., Fellow of the Royal College of Physicians, Physician to St. George's Hospital. 8vo., pp. 139. London: 1850.

This volume consists of twelve Lectures, delivered, last year, at St. George's Hospital, at the conclusion of the course of Chemistry. The author informs us, in his preface, that he had intended to illustrate them by cases, and to form them into a treatise on Stomach and Renal Diseases. We heartily wish he had accomplished this project; for, valuable as is the work now before us, we feel that its utility would have been greatly enhanced by its extension and illustration. Dr. Prout's deservedly celebrated work is both too large and too profound for the busy practitioner,—the man who can only read by snatches, and therefore needs his information to be presented in a small compass, divested of every thing that is not strictly essential.

Food. The First Lecture is occupied with this subject; and is admirable for its clearness and freedom from useless and perplexing speculations. All substances, vegetable and animal, which are fitted to sustain animal life, consist of ingredients belonging to the four following divisions: 1st, water; 2nd, salts, or ashes; 3rd, organic substances containing very little or no nitrogen,—as fat, vegetable acids, starch, sugar, etc.; 4th, organic substances rich in nitrogen,—as fibrin, albumen, vegetable albumen, etc. No two different articles of food probably contain these ingredients in the same proportions; and, accordingly, they vary in their nutritive qualities, those being most nutritious which have the largest supply of nitrogenous compounds. But the absence of any of them is destructive of the perfect fitness of the substance as an article of diet, when taken by itself. "On olive-oil, linseed-oil, or cod-liver oil, an animal may grow fat, but he cannot work on such food alone. For the work of the muscles, it is requisite that the food should be albuminous, not fatty. A horse, for example, for hard work, must have corn, and not hay. To do work, food rich in nitrogen is necessary; to grow fat, food rich in carbon is required." But neither will nitrogenous substances alone suffice for food. Animals fed on white of egg died of starvation. There must be a due admixture of all. This is shown in the composition of milk, the type of the food for infants; and in that of wheat, which may equally be regarded as the type of the food for man, with this exception, that water is requisite in addition to the latter.

One great object of vegetables is to prepare the food for animals. "Vegetables, from the air, the water, and the soil, make compounds which animals require,—substances, that is, which, with the least possible change, can be formed into parts of the animal. Vegetables, from carbonic acid, ammonia, water and salts, form albuminous substances, fatty matters, starch, sugar, whereby the various organs of the body are nourished and enabled to perform their actions. The power of forming higher compounds out of more simple ones, is, in vegetables, unlimited. Their power of thus compounding simple substances into more complex ones, is most extensive; whilst, in animals, the power of conversion is probably limited to a simplifying change,—the power of forming higher organic compounds out of lower ones is at present unproved. But, you might say, cannot animals make nervous substance,—the noblest substance in creation, whose action so utterly forbids our comprehension? If we examine this nervous substance, we find it also consists of the four classes, viz., albuminous substance, fatty substance, ash, and water; and the highly-organized muscle contains the same substances in different pro-

portions. The power of animals is shown in their forming the substances which they obtain from vegetables into complex structures and organs; whilst the power of vegetables is shown in the production of new compounds, new arrangements of the elements into higher and more complex bodies,—as vegetable acids, alkaloids, neutral substances, albuminous and fatty matters. The power of adapting forms, and making organs, the formative and organizing power, is more seen in animals than in vegetables. The power of building up new compounds, new substances—the compounding, or substance-making power, is, with some exceptions, perhaps limited to vegetables." This is a very important distinction, which should be always kept in mind.

Digestion is the subject of the Second Lecture. Rejecting the divisions usually recognized, Dr. Jones adopts the following as the steps in the process of digestion: 1, solution; 2, absorption; 3, assimilation. Before any substance can be absorbed, and made part of the system, it must be dissolved. The solvent of the food is the gastric juice, a highly acid fluid, secreted by the stomach. It consists of water and free acid, salts, non-nitrogenous organic substances, and albuminous, or nitrogenized substance. "Of these substances, the most important is the free acid. What the free acid is, has not yet been determined. Hydrochloric, phosphoric, acetic, lactic, and butyric acids, have each been said to exist in the gastric juice. The hydrochloric and phosphoric acids are mineral or inorganic acids. The rest are organic acids, possibly arising from starch, sugar, or fat, or other compounds of the non-nitrogenized part of our food. Thus these organic acids might be formed; but whence can the inorganic acids come? Hydrochloric and phosphoric acids exist only in the food and blood, combined with soda, potash, or lime, as in common salt, phosphate of soda, or phosphate of lime. To set free the acids, the alkalies must be separated. If one equivalent of hydrochloric acid is set free in the stomach, one equivalent of soda must be set free in the blood. The greater the quantity of acid in the stomach, the greater the quantity of alkali in the blood, and the more alkaline the serum must become. Whether this separation is effected by galvanic action, nervous action, or muscular action, is at present altogether unknown. Those who say anything, say it is by vital action.....When digestion is completed, the acid is reabsorbed with the food, and the alkalescence of the blood must be altered in the opposite direction. When the stomach is empty, there is little, if any, acid there then; when food is taken, the quantity of acid begins to increase, and gradually reaches the greatest amount poured out."

The next most important constituent of the gastric juice, is the albuminous substance. Its exact nature is not known. Dr. Jones does not believe it to be epithelium, but most probably a peculiar substance like diastase. Wasmann called it pepsin. The non-albuminous organic substances are the organic acids and fatty matter,—the last probably in very small quantity.

This complex gastric juice acts differently on nitrogenized and non-nitrogenized food. "Strong acids easily dissolve albuminous substances; and the dilute acid of the stomach, in consequence perhaps of some influence of the nitrogenized pepsin, or animal diastase (?), is made to act as energetically on the albuminous food, as strong acid would do. In this action there is nothing vital; it takes place as well out of the body as in it. The elements of the albumen cannot be converted so as to form water, salts, sugar, or fat. There is no formation of incipient albumen. If you please to call solution, reduction, or combination of water with the substance dissolved, you may say the albumen is reduced. To me it is far more simple, and quite as comprehensible, to speak of it as a process of solution, and as nothing else." In this we thoroughly agree with our author.

Starch is perfectly insoluble in water and in dilute acids; but by the action of dilute acid it easily undergoes a change, by which it is rendered soluble, becoming what is called dextrine. A continuation of the same action

converts the dextrine into sugar. "A portion of the sugar, which is taken as such, or is formed from starch in the stomach, without doubt passes into the blood as sugar; but it appears to me highly probable, from Fremy's experiments, that a portion is changed into some of the vegetable acids. The acetic and lactic acids may thus be formed; and these, in part, perhaps may become lactates and acetates of soda in the blood. And we know, from direct experiment, what happens to vegetable acid salts injected into the blood, or taken into the stomach: they are oxidized, or burnt, giving heat, and carbonic acid salts, which pass off in the urine. All free vegetable acids are probably changed partly into carbonic acid in the blood. Thus, then, probably the progress of a grain of starch may be traced. It forms, first, dextrine; secondly, sugar; thirdly, vegetable acid; fourthly, carbonic acid. The ascending conversion of sugar into albumen cannot be admitted until it is proved. There is not an experiment which renders such a change probable."

The pancreatic fluid and the bile are generally considered as the agents which make the fat and oil of the food soluble.

The Blood is treated of in the Third Lecture. We quote the following pregnant observations: "There is not, nor, indeed, can there be, any standard analysis of blood, to which all others may be referred. The blood has been called an internal atmosphere; and, in its constant, momentary variations, in its unceasing change, it may well be compared to the atmosphere. Each moment its composition, as a whole, is changing; each respiration produces its change on the blood; each time food is taken, a great change in the blood must occur; you cannot add a pound or two of matter to the blood without changing it; each action of a muscle, or nutrition of any part of the body, must take something from the blood, and thus change its composition. So, also, each excretion from the blood must effect its peculiar changes on that blood, out of which each excretion is taken. These are the broad outlines of the causes of the changes of blood. The water is always changing; the nitrogenized and unnitrogenized substances are always varying in amount; even the salts, even the alkalescence of the blood, is in a perpetual state of variation; at no two moments of the day is it the same. The quantity, then, of the various substances present in the blood is constantly changing; and the variations in the state of health require to be far more minutely studied than they have been, before deductions as to the variations in disease can be safely trusted."

To detect uric acid in the blood, Dr. Jones recommends the following process: "The clear serum is poured into a basin, and evaporated, at 212°, to perfect dryness. The mass is to be reduced to the finest possible powder, and then heated, at the temperature of 100° F., with distilled water for an hour. By this means, everything soluble in the residuum is obtained in solution, and the urate of soda, being soluble, is dissolved out. The solution is then to be evaporated to a very small bulk, and strong acetic acid should be added. Acetate of soda is thus formed, and uric acid is set free; and, in the course of a few, or many hours, according to the quantity of uric acid, and the dilution of the mother liquor, the uric acid crystallizes out on the sides or bottom of the tube. To the eye, the crystals look like small grains of cayenne pepper; through the microscope, they look like some uric acid crystals from the urine; and, if a few of them are taken and treated with nitric acid and ammonia, in the usual way, the diagnostic pink reaction is obtained."

Calculi. The Fourth Lecture contains an admirable account of the different Calculi found in the urine, with the methods to be employed for their analysis. For these we must refer to the work itself, as any epitome would be meagre and unsatisfactory.

The Quantity and Acidity of the Urine are considered in the Fifth Lecture. After showing how it is not possible to determine the quantity of solid ingredients by the tables which have been constructed for that purpose, the specific gravity being the guide, Dr. Jones relates several experiments from which the following conclusions are drawn. "From these experiments it appears that, immediately before each meal, the urine showed the highest degree of acidity; and the water passed two, three, or more hours, after food, always showed a lower degree of acidity. The decrease was greatest three hours after breakfast, and five or six hours after dinner, when it reached the lowest point. The acidity of the urine then increased, until immediately before food, when it again reached its highest limit. If no food was taken, the acidity of the urine did not decrease, but remained nearly at the same degree of acidity for twelve hours; but, then, directly after food was taken, the acidity fell. When animal food only was taken, the diminution of the acidity after food was more marked and more lasting than when a mixed diet was taken. The increase of acidity before food was hardly so great, as when mixed diet was taken. When vegetable food only was taken, the decrease in the acidity was not so great as when animal food was taken,—that is, though the urine became neutral after food, it did not become highly alkaline. The increase in the acidity of the urine was higher before vegetable food than it was before animal food was taken. Dilute sulphuric acid was taken in large doses, but it did not produce a very decided effect. Nine drachms of dilute sulphuric acid, in three days, slightly diminished the decrease in the acidity of the urine after food; but the acidity before food was very slightly, if at all, increased thereby. By comparing the acidity of the whole quantity of urine passed in twenty-four hours for three days when no sulphuric acid was taken, with the acidity when nine drachms of dilute sulphuric acid were taken during three other days, the increase in the acidity, though not very marked, was decidedly apparent. The average quantity of carbonate of soda required to neutralise the whole of the urine made in twenty-four hours, when no sulphuric acid was taken, was 15·39 grains. The average quantity required when sulphuric acid was taken, was 20·38 grains. There was but little difference in the quantity of urine.

"Tartaric acid, in large doses, produced a decided effect on the acidity of the urine. Three hundred and fifty-four grains of dry and pure tartaric acid, taken in three days, increased the acidity of the urine; but, in that time, it did not render the effect of digestion on the reaction of the urine less apparent than it was when no acid was taken.

"Liquor potassæ, in large doses, produced a decided effect in diminishing the acidity of the urine; but it by no means renders the urine constantly and permanently alkaline. Its effect seems to pass away rapidly. An ounce of strong liquor potassæ, taken in three days, did not counteract or conceal the influence of digestion on the reaction of the urine.

"Tartrate of potash produced a most decided and rapid effect on the acidity of the urine; one hundred and twenty grains of pure dry tartrate of potash, dissolved in four ounces of distilled water, made the urine alkaline, in thirty-five minutes. In two hours, the alkalescence had disappeared; but after the next meal, the effect of the tartrate of potash was again apparent. Ten drachms of tartrate of potash, in three days, produced but little, if any, effect on the acidity of the urine after it had been omitted for twenty-four hours."

Dr. Jones does not speak positively as to the cause of the acidity of the urine, though he considers that it probably results, generally, from the presence of acid phosphate of soda.

Uric or Lithic Acid is the subject of the Sixth Lecture. According to our author's observations, the uric acid exists in combination with ammonia, the urate of ammonia being modified in form and in solubility by the pre-

sence of common salt, and other saline substances. He has not been able to prove the existence of two compounds of uric acid and ammonia, and suspects that the super-salt, described by Dr. Bensch, was a mixture of uric acid and urate of ammonia. That the acidity of the urine is not caused by such a super-salt, as Dr. Prout supposed, is evident from the fact, that the variations of the acidity of the urine and of the uric acid, instead of coinciding, have an inverse relation to each other: when the urine is very acid, there is usually but little urate of ammonia present; when there is much urate of ammonia, not unfrequently the urine is nearly alkaline.

The quantity of urate of ammonia varies remarkably during the day. A few hours after any food, the amount is increased; long after all food, it is excessively diminished. It is but little affected by differences in the kind of food. A slight excess or increase in the acidity of the urine will cause the precipitation of urate of ammonia. If it be highly acid, a precipitate may occur, even when no excess of the salt exists. If the urine tend to alkalescence, an excess of urate of ammonia will be dissolved, and will show no appearance of a superabundance of urates. The precipitation of uric acid crystals depends only on the acidity of the urine, and is quite independent of the quantity of the urate of ammonia excreted. They constitute by far the most delicate and trustworthy test of an over-acid state of the urine.

In regard to the treatment of these two kinds of deposit, Dr. Jones writes, "If uric acid crystals are present, there are two things to be done, namely, to give alkalies, and to forbid and remove all that may become acid. For the first, caustic alkalies, carbonated alkalies and earths, saline draughts, and phosphate of soda;—these must be regulated according to the peculiar symptoms of the patient: for the second, vegetable acid, sugar, and starch in the food, should as far as possible be prohibited. The removal of acids by the skin, and of carbonic acid by free respiration and exercise, is of still greater benefit; shortly, the uric acid crystals indicate that acidity must be removed, neutralized, and prevented.

"When uric acid crystals are absent, and urate of ammonia is deposited alone, it is a proof that no great excess of acid is present in the urine, otherwise uric acid would be found; and though, by lessening the acidity of the urine, we can keep the urate of ammonia dissolved in it, and so hinder it from appearing, yet this is not the best mode of proceeding for effecting even this purpose. An extra glass of water, or soda-water, or some slight diuretic, as nitre, is more sure to keep the urate of ammonia in solution by increasing the quantity of urine, and this is the best palliative treatment; whilst the curative treatment consists in lessening the quantity of food taken, by smaller meals, and in lessening the acidity of the urine, by increased exercise. Thus you will best prevent deposits of urate of ammonia, and the alkalies may be kept until uric acid crystals appear, when they are as necessary, as in urate of ammonia deposits they are unnecessary, for the treatment."

Oxalate of Lime and Sulphates form the subject of the Seventh Lecture. Octahedral crystals of oxalate of lime are so often found, in cases of such very different characters, and even when there is no evidence of disease, beyond some indigestion, that Dr. Jones (and in this we fully agree with him) does not consider that they are of more importance than a deposit of urate of ammonia. In the treatment, "ammonia, mineral acids, quinine, and iron are indicated. Animal diet, cold baths, and brandy and water, appear frequently to give much benefit. When there is irritable bladder, with excess of mucus and epithelium, camphor and compound tincture of camphor have proved very useful. If blood-globules occur with the octohedral crystals, the presence of gravel or calculus in the bladder or kidneys becomes probable. Whether sugar gives rise to oxalic acid in the urine, is far from being determined. When no sugar at all has been taken, and the

patient has lived on animal food alone, I have found oxalate of lime in plenty in the urine. I have already stated to you, that sugar is most probably converted into some acid in the stomach; and that sugar should therefore be avoided in some cases of indigestion, is most certain. That the use of distilled water, instead of spring water, will lessen the quantity of lime passing through the body, is also most certain. By this means, the oxalate of lime may be somewhat lessened; but by air, exercise, and careful diet, the disorders which accompany it may be cured."

It is impossible to determine, from simple inspection of the urine, whether there be or be not present an excess of sulphates, because they never form a deposit. The fact may, however, be ascertained by the following method. About five hundred grains of urine are weighed, and chloride of barium is then added in excess, and a few drops of nitric or hydrochloric acid are employed to ensure the solution of the phosphate of baryta. Heat is then applied, and the liquid is boiled for a few minutes briskly. The sulphate of baryta is then filtered, and well-washed, until the clear liquid is perfectly free from chloride of barium. The filter is burnt, and the residue weighed; and thus the amount of sulphate of baryta in a known quantity of urine is determined.

Proceeding in this way, Dr. Jones has ascertained, 1. That the sulphates in the urine are much increased by food, whether it be animal or vegetable. 2. Exercise does not produce so marked an increase in the sulphates. 3. Sulphuric acid, when taken in large doses, increases the sulphates in the urine; in small quantity, it produces little or no effect. 4. Sulphur, when taken, increases the sulphates in the urine; and sulphate of soda or magnesia produces the greatest effect on their quantity.

Alkaline and Earthy Phosphates are treated of in the Eighth Lecture. Dr. Jones considers that the term phosphatic diathesis is incorrectly applied to those cases, in which there is a deposit of earthy phosphates, because such deposits merely show that the urine is not acid enough to retain them in solution; they by no means give any indication of the quantity of phosphatic salts present. He, therefore, would call such urine alkaline, if the deposit result from excess of fixed alkali; ammoniacal, if from the presence of carbonate of ammonia.

The alkaline phosphates exist in the urine in much larger quantity than the earthy; but they never make their appearance as deposits, and therefore can only be measured chemically. Their excess constitutes the true phosphatic diathesis. The following is the method to determine the quantity of phosphates and their variations. "About one thousand grains of urine are weighed, and the earthy phosphates precipitated by pure ammonia free from carbonate. They are filtered, washed with ammoniacal water, and heated to redness, adding a drop or two of nitric acid; then the earthy phosphates are determined by weighing the residue. The alkaline phosphates are estimated by taking about five hundred grains of urine, adding an excess of chloride of calcium, and then pure ammonia. Thus all the phosphoric acid is precipitated as phosphate of lime. This is filtered, well washed, and the filter and precipitate burnt with a drop or two of nitric acid. If the filtration has been slow, it is necessary to re-dissolve the residue in the platinum crucible by hydrochloric acid, and to re-precipitate by pure ammonia, after which the filtration will take place very rapidly. After being burnt, the crucible is weighed, and by deducting the previously determined earthy phosphates, the difference may be taken as alkaline phosphate." Proceeding in this way, Dr. Jones ascertained, that the amount of earthy phosphates depends chiefly on the amount of earthy matter taken into the body, and that the amount of alkaline phosphates depends chiefly on the food, being increased by vegetable diet, but that exercise also causes some increase.

After a long inquiry into the total amount of phosphates in various diseases, he has arrived at the following conclusions.—"1. The variations of the

earthy phosphates are so dependent on the earthy matter (lime or magnesia) present in the urine, that no deduction from them as to the nature or state of the disease is possible. 2. Neither the earthy phosphates, nor the alkaline phosphates, are permanently increased in spinal diseases. 3. In fevers, and acute inflammations of fibrous, muscular, or cartilaginous tissues, the total amount of earthy and alkaline phosphates is not increased. 4. In chronic diseases, in which the nervous tissue is not affected, no deduction can be drawn. 5. Chronic cases of mania, melancholia, and general paralysis of the insane, gave no marked results. 6. In chronic diseases of the brain, and in chronic and even acute disease of the membranes, there is no increase in the total amount of earthy and alkaline phosphates. 7. In fractures of the skull, when any inflammation of the brain comes on, there is an increase in the total amount of phosphates. When there are no head symptoms, no increase of the phosphates is observed, even when other acute inflammations supervene. 8. In acute inflammation of the brain, there is an excessive amount of phosphates in the urine. When the inflammation becomes chronic, no excess of phosphates can be shown to exist in the urine by the method of analysis that was employed. 9. In some functional diseases of the brain, an excessive amount of phosphates is observable ; this ceases with the delirium. Delirium tremens shows a remarkable deficiency in the amount of phosphates excreted, provided no food is taken. When food can be taken, the diminution is not apparent."

The Alkalescence of the Urine, from fixed and volatile alkali, is discussed in the Ninth Lecture. All urine, after standing for a time, which is exceedingly variable in respect of length, becomes alkaline, the elements of the urea being re-arranged so as to form carbonate of ammonia. It is probable, that the chief agent in this change is the mucus ; and it is certain that the greater the quantity of mucus present, the more rapid is the decomposition. Hence alkalescence of the urine follows speedily on irritation of the mucous membrane of the bladder. But the urine is often alkaline without the production of any carbonate of ammonia, this condition being caused by the presence of carbonate or phosphate of soda. The following sketch shows the comparative characters of the urine under these circumstances.

Alkalescence from carbonate of ammonia caused by local disease.	Alkalescence from fixed alkali caused by general disorder.
Blue paper made red on drying.	Blue paper not made red on drying.
Alkalescence constant.	Alkalescence variable.
Excess of mucus and pus present.	No pus. Rarely much mucus.
Prismatic crystals generally seen.	When first made, granular deposit only seen.
The iridescent film has prismatic crystals.	The iridescent film consists of thin plates only.

These distinctions are of importance in the way of diagnosis, and therefore of treatment. In either case, the diseased condition which produces the alkalescence of the urine should be the subject of treatment, not the mere symptom itself. The rest of this lecture is occupied with the chemistry of urea.

Albuminous Urine is the subject of the Tenth Lecture. Heat and nitric acid together form the best, and indeed the only safe test for albumen, and the above is the order in which they should be employed. Either alone may give rise to mistakes. Dr. Jones very properly insists upon the importance of using a perfectly clean tube. A small quantity of strong acid will prevent the coagulation of the albumen by heat ; and it even appears, that the same test may fail when the urine is very acid, without anything having been added to it. Albumen is never present in healthy urine, but by itself it merely indicates excessive congestion of some part of the urinary organs ; to determine what disease is really present, the microscope must also be em-

ployed. By this means, we detect the presence of blood-corpuscles, or pus-globules, or fibrin. If the fibrin be moulded into the urinary ducts of the kidney, and if albumen be also present, with or without blood-globules, there must be congestion of the cortical structure of the kidneys; and most probably the disease is Bright's disease, or the result of scarlet fever. If blood-globules be found, and no fibrinous cists, it is most probably that the congestion is not in the secreting structure of the kidney; and if crystals of uric acid or oxalate of lime be seen, then probably some calculus is causing abrasion of the vessels of the mucous membrane. Whether the calculus is in the pelvis of the kidney, the ureter, the bladder, or prostate, must be determined by the general symptoms. The nature of the epithelium that occurs in the urine, will also sometimes help to determine this question. The occurrence of the blood only on exertion tends to confirm the diagnosis of a calculus. If pus-globules be found with albumen, then suppurative inflammation is going on; if, at the same time, fibrinous moulds are seen, then probably Bright's disease and inflammation of the pelvis co-exist. If there be no moulds, but blood-globules and pus-globules, then probably a calculus has caused not only abrasion, but inflammation of the mucous membrane. When fibrinous moulds, blood-corpuscles, pus-globules, albumen, and crystalline deposit were seen, then degeneration of the kidney, inflammation, and calculus, were found on post-mortem examination. In one case, Dr. Jones found the urine albuminous from spermatozoa.

A peculiar substance, closely relating to albumen, has also been found in the urine, as well as in the buffy coat of inflamed blood. It is not precipitated directly by heat, nor by nitric acid, but if, after boiling, the urine is cooled, the precipitate falls, and is re-dissolved by heat. The nature of this substance is detailed by Dr. Jones in the *Philosophical Transactions* for 1847.

Our author then relates the following interesting case: "The patient had for some time been passing the so-called chylous urine; but I have fully satisfied myself that the presence of fat in the urine, on which the white colour depends, is an accident only, and by no means the most peculiar part of the disease. The fat passes off in the urine, making it milky only after food; but previous to any food, albumen, fibrin, alkaline salts, and more rarely a few blood-globules, are thrown out by the kidneys, and their appearance in the urine depends on the increased force of the circulation, consequent on waking, on getting up, and on exertion; for, during sleep, the albumen, fibrin, etc., entirely disappear from the urine, and, by directing the patient to lie in bed, or to get up and exert himself, totally different kinds of urine were passed. When perfectly quiet, the albumen and fibrin were prevented from appearing in the urine; and, when he exerted himself before breakfast, these substances transuded in very considerable quantity. The urine sometimes, previous to any food, even formed a jelly-like clot, transparent, and perfectly free from the appearance of fat. I satisfied myself that the disease does not depend on chyle or on fat, but on a slight alteration in the state of the kidney, and on the circulation of the blood through it. Under treatment, the urine became perfectly healthy."

Diabetes and Diuresis are the topics of the Eleventh Lecture. The best tests for sugar in the urine, are the oxide of copper and oxide of silver. To a drachm of suspected urine, add two or three drops of a saturated solution of sulphate of copper, and then two drachms of caustic potash; the hydrated oxide of copper, which first is precipitated, re-dissolves if sugar or many other organic substances are present, becoming of an intense blue; and when heat is applied, if grape-sugar be present, the oxide of copper is rapidly reduced, and reddish-yellow sub-oxide of copper is precipitated. This reduction is effected by the carbon of the sugar. With cane-sugar, the changes do not take place until after a long application of the heat; and, under these circumstances, both uric acid and albumen will also effect a slow reduction of the oxide of copper. The rapidity of the change is consequently the test.

If silver be used, the following is the method to be employed. A few drops of a saturated solution of nitrate of silver are to be put in a test tube, and a single drop of caustic ammonia added; if a brownish oxide of silver fall, a single drop of the suspected urine is to be added, and the test-tube then heated, and its contents well shaken. In a few seconds, the sides of the tube will be coated with silver, and the metallic lustre will be seen.

The theory of the disease is as yet unknown. Sugar, as we saw before, is constantly formed in the body from starch; from some cause, with which we are not acquainted, the progress of the starch may be arrested at this point. In cases where the urine is excessively acid, the changes have advanced another step; as thus:—

In health the changes are, starch, dextrin, sugar, vegetable acid, carbonic acid.

In excessive acidity; starch, dextrin, sugar, vegetable acid.

In diabetes; starch, dextrin, sugar.

But the starch taken in food cannot account for all the sugar in diabetic urine; for when the disease is fully established, total abstinence from starch and sugar will not cause the sugar entirely to disappear. Dr. Bensch has shown, that sugar of milk is invariably present in the milk of carnivorous animals fed exclusively on meat; and by boiling with water, the livers of animals fed exclusively on flesh have furnished positive proof of sugar.

There is a form of diabetes to which the term *insipidus* has been applied. In these cases, the urine contains a substance closely allied to sugar, but tasteless, and which may be converted into grape-sugar by the action of acids. In some cases of the ordinary disease, the urine has been found to contain these two saccharine bodies alternately; and therefore the term is a needless one.

The Relation of the Urine to the Food and System, and the general method for its examination, are considered in the Twelfth and Last Lecture. Any organ that is used must be repaired, and the substance that has been used must be removed. Take the muscles for example; the muscles consist of water, salts, non-nitrogenous fat, and a highly compound arrangement of carbon, hydrogen, nitrogen, oxygen, sulphur, and phosphorus. Carbonic acid, ammonia, water, sulphates, and phosphates are the last products of muscular action, and of the action of oxygen on the muscle. The intervening products, probably, are innumerable; as kreatin, kreatinine, uric acid, urea, choleic acid. Some of the products are thrown out of the body by the lungs, others by the kidneys. If the removal of some of these products by the lungs is stopped, the circulation through the lungs ceases in two minutes; the functions of the heart and brain are arrested, and from the mechanical stoppage in the lungs, death ensues. If their removal by the kidneys is stopped, in two days the patient is poisoned; the nerves and muscles are affected by the poison, and chemical death ensues. "If beef-steaks (the muscles of an ox) are given to one who has taken strong exercise, and is in perfect health, they are dissolved, and pass into the blood, and their chief use is to repair the muscles and nerves, not to form uric acid and urea, the constituents of the urine. The waste of the muscles, and other organs, passes off in the urine, whilst the food nourishes the wasting organs. Such I conceive to be the clearest ideas I can give you of the relation of the urine to the system, and to the food; and, theoretically, I consider this is the true healthy relation, and perhaps, in a state of full bodily labour, when enough food, and no more than enough, is taken, this may be the only relation; but provision has been made for too little labour and for too much food. If too much food is constantly taken, and too little exercise, plethora and hæmorrhage must take place, if some escape for the excess of food be not provided. You have seen that the phosphates, urates, and sulphates are generally increased in the urine after food has been taken. If more food is taken than is required for the wants of the system, the excess is thrown

out by the same organs that remove the waste of the muscles and other structures. If even excess of water alone is taken, the excess is thrown out partly, at least, by endosmotic laws not yet clearly applied. How the quantity of substances to be thrown out is determined, I do not yet distinctly see."

The great agent in affecting these changes is oxygen. Of this there are many familiar proofs, as the production of carbonate of potash in the urine after the citrate of potash has been taken. "Very lately, Professor H. Rose, of Berlin (*Phil. Mag.*, July 1849), has made some most interesting experiments on the inorganic constituents of organic bodies, chiefly as regards their degree of oxidation. He divides the degrees of oxidation into fully oxidized, partially oxidized, and unoxidized. He compares the food, the blood, the flesh, and the urine. The food, if it consists of wheat and other grain, contains organic substances, the inorganic constituents of which exist partly in an oxidized, partly in an unoxidized state. Vegetable food, then, is partially oxidized. The blood is a partially oxidized body. The flesh is a partially oxidized body; but the quantity of unoxidized matter in the blood is larger than in the flesh, and the quantity of fully oxidized matter is smaller in the blood than in the flesh. The urine is a perfect and fully oxidized substance. The inorganic constituents of the urine are as highly oxidized as it is possible for them to be."

The length to which our analysis of these lectures has extended, notwithstanding the wide circulation which has already been given to them in the *Lancet*, is a sufficient proof of the very high value which we attach to them. Still, it is only simple justice to the author, and to our readers, to urge the latter to obtain them, if they wish to possess the most lucid and satisfactory exposition, in our language, of the subjects of which they treat. We hope soon, again, to meet the accomplished author in the same important, but most difficult, field of inquiry: a field which can only be cultivated with advantage by one who possesses, like him, the rare qualifications of being alike thoroughly accomplished as a chemist and as a practical physician.

Cholera and its Cures. An Historical Sketch. By J. Stevenson Bushnan, M.D., Member of the Royal College of Surgeons of England, and Fellow of the Royal College of Physicians, Edinburgh. 8vo., pp. 169. London: 1850.

This is not a regular treatise on Cholera, but in reality a sketch, as the title truly indicates. In attempting to deduce from the work itself the purport of its publication, two prominent objects are apparent,—one, to advance the progress of what has been termed Sanitary Reform; the other, to defend the author, and advocate the adoption of a particular remedy, to the exclusion of all others. Indeed, so ardent an admirer is Dr. Bushnan of one peculiar mode of treatment, that the preliminary step of depreciating all other remedies, is not delayed beyond the first page of the preface, in which it is asserted, without any modification, "that the mortality of Cholera has not been diminished a single *iota*, by the means usually employed, and that nearly half of those attacked have been cut off in every part of the world." This is sufficiently explicit, and discouraging at the same time; but it is consolatory to know that "if the ignorant will submit to be enlightened, and the prejudiced will listen to reason", Cholera "may be shorn of its terrors, and brought completely under medical control". The reader, with some pardonable misgivings, will naturally inquire, how such a consummation, in every respect so desirable, and so diametrically opposed to all past experience, is to be effected? and in reply, he will be told by Dr. Bushnan, that the cure of Cholera, by the saline remedies, introduced into practice by Dr. Stevens, is so certain, that it may be looked on as an axiom in medical science, or, to employ the quotation of the learned writer, "*demonstratum est quod erat demonstrandum*".

So far all appears satisfactory; but, when we come to examine the

amount of evidence, on which this very important alleged demonstration is made to rest, it may be permitted us to suggest, without appearing hypercritical, that the foundation seems rather slender, for supporting the weight of the superstructure erected on it. For, leaving apart all mere opinions (not very numerous), in favour of the saline treatment, which are unsupported by facts, we find the cases actually adduced by the learned author, in proof of its efficacy, to be those treated by Dr. Stevens himself, in conjunction with his assistant, Mr. Crooke, and Mr. Wakefield, at the Coldbath-fields prison ; by Dr. Kendrick, at Warrington ; by Mr. Bossey, on board the Woolwich convict-ship ; and by Dr. Marsden, at the Greville-street Hospital—all occurring in the year 1832, and amounting on the whole to about 1,000 cases ! The statement with respect to the first-mentioned institution, is, that of 446 patients treated on the saline plan, 201 of whom were in a state of collapse, only eight died, and 438 recovered, showing a mortality of less than three per cent. This enumeration includes the results obtained by Dr. Stevens in the first irruption of the disease, at which period, of 159 patients *affected with Cholera*, 158 *recovered, and only one died.* This is a degree of success, beyond what most practitioners could show, in the treatment of any disease whatever, and exhibits Cholera as the most manageable, instead of the most terrible and intractable of all maladies, which are permitted to afflict the human race. But most sober-minded physicians, who have derived their knowledge from a practical acquaintance with the disease in question, will, we are disposed to think, conclude with us, even at the risk of being ranked among the "ignorant and prejudiced", that the results referred to prove a great deal too much. Of Dr. Kendrick's experience, limited to thirty cases, it is only necessary to observe, that even as far as it goes, it is not favourable to the pure saline treatment, which was less successful in his hands, when used alone, than when conjoined with blood-letting. In Mr. Bossey's practice, too, the success of the saline remedies alone, and when employed along with bleeding, was nearly on a par. Dr. Bushnan, therefore, in claiming the entire credit for the saline treatment in these cases, either overlooks altogether the influence of so powerful an auxiliary as general blood-letting, or else he attributes to it no share in the successful result. The testimony of Dr. Marsden, however, is more favourable than that of the two last-mentioned practitioners ; for out of 81 collapsed patients, treated solely on Dr. Stevens' plan, seven only died, showing a mortality of about 8·6 per cent. Such is a brief *resumé* of the entire statistical facts adduced in support of Dr. Bushnan's views. For the history of the saline treatment, and the controversy between Dr. Stevens and his friends on one side, and the late Sir David Barry and his coadjutors on the other, we must refer the reader to the elaborate statement of Dr. Bushnan, as we have neither space nor inclination to enter into the subject. This, however, is the less necessary, and would perhaps be premature, as further communications are promised ; and, after the statements of Dr. Bushnan, it does not seem likely that the question will be allowed to rest in its present position.

With reference to the more important topic, the practical value of the saline treatment, it is to be observed, that Dr. Bushnan has confined his advocacy entirely to one side of the question ; and that, whilst his work professedly embraces the history of the recent irruption of Cholera, all his testimony in favour of Dr. Stevens' remedies is deduced from the epidemic of 1832. In a fair discussion of the point at issue, surely some notice of more recent experience might naturally have been looked for, before the learned author arrived at conclusions so positive ; and it certainly would not have been unreasonable to expect, that some notice at least would have been taken of the unsuccessful results of the saline treatment in the hands of Dingham, Richardson, Ross, and others, during the last epidemic. Were the arguments and evidence of the writer sufficient to establish the very important point for which he contends, we are certain that his success would be hailed by every member of the medical profession with unequivocal delight, whilst the

discovery would constitute for Dr. Stevens a lasting claim to universal gratitude, as one of the greatest benefactors of the human race. As it is, however, and in the present state of our knowledge on the subject, we fear that Dr. Bushnan has as far over-estimated the efficacy of the saline treatment, as he has under-rated the value of other remedies, although we admit that he has castigated with just severity some of the unmitigated quackeries called forth by the last epidemic.

The erroneous estimate of treatment, into which he, as well as many others, has been betrayed, probably depends on *a difference of opinion as to what really constitutes the disease in question.* Malignant Cholera, we fear, has not yet been divested of all its terrors; and, in our opinion, the infallible remedy still remains to be discovered.

This is the general plan of the work before us. The first chapter contains a succinct sketch of the progress of the various epidemics of Cholera since 1817. The second chapter refers to the nature and causes, and to the more early history of the disease. The author correctly adopts the opinion of several previous writers, that Cholera was known to the ancients, and that the popular classification into English, Bilious, and Asiatic, or Malignant Cholera is erroneous, except as far as it implies the different degrees of intensity assumed by the malady. In support of this view, he quotes the opinion of a recent writer on the subject, to the effect "that if we go beyond this, we are inferring a difference, unfounded in fact, unsupported by observation and legitimate deduction, and of injurious practical tendency." In passing, we may observe, that Dr. Bushnan incorrectly attributes the quotation which he here makes use of, to the author of the article Cholera in the Cyclopædia of Practical Medicine, whereas it is really to be found at page 33 of "An Enquiry into the actual state of our knowledge of Cholera," by Dr. Alexander Knox.

In the author's discussion on the causes of the disease, little novelty is of course to be looked for. The views of many previous writers are given, and the sources from which they are derived are generally distinctly referred to. The only alleged causes, bearing even the semblance of novelty, are impregnation of the atmosphere with sulphuretted hydrogen, the continued use of a diet deficient in sulphur, and the transmission of the disease through the medium of impure water, according to Dr. Snow, or of impure water only, in common with various other causes, as asserted by M. Pellarin. We may allude further to the experiments and observations of Brittan, Swayne, and Budd, tending to shew that Cholera depends on peculiar microscopic bodies, of various forms, and of a fungoid nature, found in the choleraic discharges, as well as in the air and water of Cholera districts. We have not space for any detailed consideration of these theories, but it is difficult to understand how sensible and clever writers can persuade themselves of the truth of views, however ingenious, founded on data manifestly imperfect. How many readers, we may ask, are likely to adopt the conclusion of Professer Webb, (to be found in his *Pathologia Indica*), that of all the causes of Cholera, sulphuretted hydrogen is the most potent. Truly, the objections to this theory are so obvious, that it appears little more feasible than the cause assigned by the Puharrees of the hills, who, as the Professor tells us, attribute the disease to "a demoniac seizure, and believe that the evil spirit springs suddenly upon the unwary from dark thickets, and shady fountains and water courses especially." We are further informed, that nearly all cases are fatal with them, as may readily be credited, "the treatment being to get five or six strong lusty fellows to shake out the devil, and frighten him by loud cries"! It is not necessary, however, to pursue this part of the subject further, as Dr. Bushnan deals effectively and well with theories of this stamp, although he passes by almost without remark the doctrine of contagion, and the question of quarantine.

Nearly one-half of the entire volume is occupied with details relative to

the miserable condition of the dwellings of the poor, especially in London, extracted from the Report and Evidence of the Sanitary Commission of 1847, the Report made to the General Board of Health, established by the 11 and 12 Vic. c. 63; the reports of Dr. Gavin Milroy, and of the Registrar-General of Births, Deaths, and Marriages, and other sources, and illustrated by a number of elaborate statistical and meteorological tables. Enough, and perhaps much more than enough, is adduced to shew, that the mortality of epidemics falls heavily on that part of the population which is aggregated in large masses in insufficient space, and that amelioration in this respect is imperatively required. The harrowing details will be read with much interest, at all events, by those who have not been previously conversant with those sources from which Dr. Bushnan chiefly derives his information.

The seventh chapter, which must have been compiled at a very considerable expenditure of labour, exhibits in a tabular form, extending over several pages, the various modes of treatment published in 1848-9. We think, in justice to the profession to which he belongs, Dr. Bushnan ought to have stated that a large number of those whom he cites were young and inexperienced, and restless scribblers, rather than practitioners of medicine. Cannabine, the plant Zhorabia, the wet sheet, extreme cold, dusting with lime (or white-washing), bisulphuret of carbon, placing the patient in hot sheets, or over the boilers of steam engines, injection of water into the bladder, chlorate of gold, tincture of rye and tannin, are the greatest novelties in this strange catalogue.

On the whole, however, the sketch of Dr. Bushnan is a valuable contribution to medical literature, as bringing up to the present time our history of the disease, from the point where it was necessarily left incomplete in the treatises of Parkes, Knox, and other writers, published early in last year, before the epidemic had completely run its course.

The style of the author, although occasionally a little inflated, is, generally, fluent and perspicuous. He possesses a desirable facility of lucidly stating elaborate statistical deductions. Were we disposed to be fastidious, we might object, that in a strictly professional work, the poetical quotations, though perhaps appropriate, are rather too numerous, as Horace, Juvenal, Shakespeare, Byron, Heber, La Fontaine, and several others, are each made to contribute his quota; but this blemish, in point of taste, is not sufficiently glaring to justify severe criticism, even if it were not counterbalanced by the more valuable qualities of the work. We thank Dr. Bushnan for his little volume.

The Principles of Surgery. By John A. Orr, A.B., F.R.C.S.I.; one of the Surgeons of the City of Dublin Hospital. pp. 496. Dublin: 1850.

This contribution to surgical science by one of our brethren across the channel, is a highly creditable production. Without aiming at originality, it gives a very fair abstract of the state of surgery in the present day: the style is terse and luminous, and the practical precepts are sound and judicious. At the end of every chapter, reference is made to the sources from which the author has derived his information, or to which he deems it advisable to refer the reader for fuller particulars upon each subject than a manual can comprise. We are by no means opposed to works like the present, which give, in a condensed form, the subject-matter of innumerable treatises and monographs; for we consider that they tend most materially to smooth the path of the student, whilst they are hardly less useful to the practitioner engaged in the active duties of his profession, who may resort to such books in order to refresh his mind with the principles of medical and surgical science. The best sources have evidently been consulted by Mr. Orr in the composition of the present volume, as the numerous references at the end of the chapters, and the soundness of the principles inculcated, abundantly testify.

A Practical Synopsis of the Diseases of the Chest and Air-Passages, with a Review of the several Climates recommended in these Affections. By James Bright, M.D. pp. 271. London: 1850.

The author of this work informs us in his preface, that his object in writing it is to submit to his professional brethren the results of his experience upon the best means of alleviating the diseases of the chest. We are accordingly informed in the first page, that "the chest is separated from the head by the neck, and from the abdomen by the diaphragm. It is composed of thirty-seven bones, namely, twelve dorsal vertebræ, twenty-four ribs, and the breast-bone or sternum. The posterior wall of the chest, concave from above downwards, is formed by the bodies of the twelve dorsal vertebræ and the posterior ends of the ribs," etc., etc. The whole work is full of the same kind of information for the benefit of the author's professional brethren; and we have in vain endeavoured to discover any views or opinions which have not been repeatedly offered to the notice of the profession. We must, however, do the author the justice to state, that although the work contains nothing new or important, it offers nothing objectionable.

New and Successful Treatment of Febrile, and other Diseases, through the medium of the Cutaneous Surface. By William Taylor, Surgeon to the Clerkenwell Infirmary. pp. 170. London: 1850.

In our last number, p. 865, we favourably noticed Dr. Schneeman's plan of inunction in scarlatina. The author of the work before us states, that he has followed a method substantially the same, for twelve years, in the treatment of *all* febrile diseases. He states that, "from 1837 to 1849, between two and three hundred cases of fever occurred in the Clerkenwell Infirmary, without a single death in idiopathic cases; whereas in 1836 alone (before his plan of treatment was adopted), twelve patients died of typhus in one month." This is rather a loose way of giving medical statistics. There is an important difference between *two* and *three* hundred cases; and there may be other ways of explaining the extraordinary mortality of one month, than by attributing it to the author's treatment not having then been in use. On the other hand, the subsequent success may not have been wholly owing to its employment. We all know how much the gravity of one epidemic differs from that of another. We are decidedly favourable to the general principles on which the author's treatment is based; but we could have wished that his treatise had been more elaborated, and more statistically complete in its account of his own experience. The subject is deserving of more careful and extended clinical investigation.

The book before us consists of an introduction; nine short chapters; and some concluding remarks.

In *the introduction* we learn how the author made his discovery; and also that the use of greasy frictions belongs to antiquity. The substances used for inunction were various; but Mr. Taylor "eventually mixed lard and suet in equal proportions, melted them carefully over a slow fire (or a water bath), and this combination having acquired about the consistence of common tallow, was, on extensive trial, found to answer every requisite. No mixed ointment that liquefies at a temperature below that of the blood, being equal to it" (p. 7).

The First Chapter is on the anatomy and physiology of the skin.

The Second Chapter treats of the connexion between the functions of the skin and fever.

The other Chapters describe the application of the inunction treatment to typhus, measles, dropsy, phthisis, insanity, delirium tremens, and hydrocephalus.

CLASSIFIED CATALOGUE OF THE PAPERS WHICH HAVE APPEARED IN THE BRITISH AND FOREIGN MEDICAL PERIODICALS FROM JANUARY 1849.

CHAPTER IV.

ANATOMY AND PHYSIOLOGY.

BRITISH AND AMERICAN JOURNALS, FROM JANUARY 1849 TO JUNE 1850.

BY ALEXANDER HENRY, M.D.

The following Journals are referred to in this and the succeeding Chapters.

Philosophical Transactions	Phil. Trans.
Medico-Chirurgical Transactions	Med.-Chir. Trans.
British and Foreign Medico-Chirurg. Review.	B. and F. Med.-Chir. Rev.
London Journal of Medicine	Lond. Journ. of Med.
Lancet	Lancet.
Medical Times	Med. Times.
Medical Gazette	Med. Gaz.
Journal of Psychological Medicine	Psych. Journ.
Edinburgh Medical and Surgical Journal ...	Edin. Med. and Surg. J.
Monthly Journal of Medical Science	Edin. Month. Journ.
Goodsir's Annals of Anatomy and Physiology	Goodsir's Annals.
Dublin Quarterly Journal	Dub. Quart. J.
Dublin Medical Press	Dub. Med. P.
American Journal of Medical Science	Amer. Journ. of Med. Sc.

GENERAL ANATOMY.

ELEMENTARY TISSUES of Animals, Chemical Characters of. ALDRIDGE (Dr.) Med. Times, March 24, 1849, vol. xix, p. 406: May 26, p. 587.

MILK, HUMAN, Coagulability of. MOORE (William D.) Dub. Quart. J., May 1849, vol. vii, N. S., pp. 275 and 492.

SUGAR, Source of, in the Animal Economy. BERNARD (C.) Prov. M. and S. Journ., Feb. 7, 1849, p. 79. From Arch. Gén. de Méd. Grape Sugar, constant Presence of in the White of Eggs. ALDRIDGE (Dr.) Med. Times, March 31, 1849, vol. xix, p. 437.

BLOOD, Physiological Researches on. HEALE (J. N.) Med. Gaz. Oct. 12, 1849, vol. xliv, p. 639. Blood-Corpuscles of Human Embryo. PAGET (James). *Ibid.*, Feb. 2, 1849, vol. xliii, p. 188.

FAT, Observations on Development of. HASSALL (A. H.) Lancet, Jan. 20, 1849, p. 63. JONES (C. H.) Med. Gaz., May 31, 1850, vol. xlv, p. 933.

CORPULENCE. Gulstonian Lectures for 1850. CHAMBERS (T. K.) Lancet, vol. i, 1850, pp. 523, 557, 581, 651, 687.

MUSCLE, Undescribed, of Scapula. BROWN (J. W. D.) Med. Gaz., May 3, 1850, vol. xlv, p. 753.

MUSCULAR SYSTEM, Varieties of. HALLETT (C. H.) Edin. Med. and Surg. J., July 1849, vol. lxxii, p. 1.

MUSCULAR FASCICULI, Arrangement of Areolar Sheath of. LEIDY (Joseph). Amer. Journ. of Med. Sc., April, 1849, vol. xvii, N. S., p. 537. Abs. in Lond. Journ. of Med., June 1849, vol. i, p. 568. Muscular Fibre, Irritability of. HALL (Marshall). Lond. Journ. of Med., August 1849, vol. i, p. 710.

BONE, Purkinjean Corpuscles in, Development of. LEIDY (Joseph). Amer. Journ. of Med. Sc., April, 1849, vol. xvii, N. S., p. 536. Abs. in Lond. Journ. of Med., June 1849, vol. i, p. 568. Occipital and Superior Maxillary of African Cranium. NEILL (John). Amer. Journ. of Med. Sc., Jan. 1850, vol. xix, N. S., p. 78. Intermaxillary in Human Embryo. LEIDY (Joseph). *Ibid.*, April 1849, vol. xvii, N. S., p. 537.

Makrocephali of Kertsch in the Krimea. Rathke (H.) Edin. Med. and Surg. J., Oct. 1849, vol. lxxii, p. 339; from Zeitschrift für Physiologie von Tiedemann und Treviranus, band v, heft 1.

Articular Cartilage, Intimate Structure and History of. Leidy (Joseph). Amer. Journ of Med. Sc., April 1849, vol. xvii, N. S., p. 277. Abs. in Lond. Journ. of Med., June 1849, vol. i, p. 561. Structure of Synovial Membrane of. Toynbee (Joseph). Lond. Journ. of Med., March 1849, vol. i, p. 217. Swayne (J. G.) Prov. M. and S. Journ., June 27, 1849, p. 341.

Urine, Variations in Acidity of. Jones (H. Bence). Phil. Trans., 1849, p. 235. Simultaneous Variations of Amount of Uric Acid in: Acidity of Urine in State of Health. Jones (H. B.) *Ibid.*, p. 245. Variations of Sulphates in, in Health; Influence of Sulphuric Acid, Sulphur, and Sulphates, on Amount of Sulphates in Urine. Jones (H. B.) *Ibid.*, p. 252.

ORGANS OF DIGESTION.

Tongue, Muscular Structure of in Man and Mammalia. Zaglas (John). Goodsir's Annals, Feb. 1850, p. 1. Structure of Papillæ of. Hassall (A. H.) Lancet, March 3, 1849, p. 234. Ridge (Benjamin). *Ibid.*, April 21, 1849, p. 427. Minute Structure of the Papillæ of the Nerves of, in the Frog and Toad. Waller (Augustus). Phil. Trans., 1849, p. 139.

Glands of Alimentary Canal, Structure of. Thomson (Allen). Goodsir's Annals, Feb. 1850, p. 33.

Liver, Structure and Development of, in Vertebrate Animals. Jones (C. H.). Phil. Trans., 1849, p. 109; and Med. Gaz., August 24, 1849, vol. xliv, p. 313. Abs. in Lond. Journ. of Med., Dec. 1849, p. 1147.

Spleen, Structure of. Sanders (W. R.) Goodsir's Annals, Feb. 1850, p. 49.

Pancreatic Juice: recent Discoveries of M. Bernard. Hall (J. C.) Med. Gaz., April 13, 1849, vol. xliii, p. 640.

ORGANS OF CIRCULATION.

Heart, Ganglia and Nerves of. Lee (Robert). Phil. Trans., 1849, p. 43. Investing Fibrous Membrane or Fascia of. Lee (Robert). Med. Gaz., 1849, vol. xliv, p. 224. Movements of, under the Receiver of an Air-Pump. Tiedemann (F.) Lancet, August 25, 1849, p. 201. From Müller's Archiv., 1847. Sounds of, Experimental Inquiry into Causes of. Brakyn (Harris C.) Lancet, Nov. 24, 1849, p. 554.

Veins of Neck, Irregular Distribution of. Coote (Holmes). *Ibid.*, Feb. 3, 1849, p. 124.

Circulation of the Blood, on the Causes of. Bigger (Dr.) Dub. Med. P., April 4, 1849, vol. xxi, p. 209.

ORGANS OF RESPIRATION.

Lungs, Structure and Functions of. Williams (Thomas). Lancet, 1849, vol. i, p. 92: vol. ii, pp. 70, 141: 1850, vol. i, pp. 440, 528. Minute Structure of, in Man, and the Principal Mammiferous Animals. Rossignol (M. le Dr.) Edin. Med. and Surg. J., July 1849, vol. lxxii, p. 88. From Mém. des Concours et des Savants Etrangers publiés par l'Acad. Roy. de Méd. de Belgique, tome i, Bruxelles, 1847. Of Bird, minute Anatomy of. Rainey (G.) Med.-Chir. Trans., 1849, vol. xxxii, p. 41: and Lond. Journ. of Med., Jan. 1849, vol. i, p. 110. Air-Cells of, Minute Anatomy of. Hall (C. Radclyffe). Prov. M. and S. Journ., Feb. 7, 1849, p. 74.

Respiration, Movements of, Physiological and Pathological Phenomena connected with: Synchronous Action of Lungs in New-Born Children. Trayer (J. J.) Med. Gaz., March 1, 1850, vol. xlv, p. 372. Excited and Modified by Volition. Barlow (W. F.) Lancet, June 23, 1849, p. 671; and Med. Gaz., July 20, 1849, vol. xliv, p. 97.

NERVOUS SYSTEM.

NERVOUS SYSTEM, Physiology and Diseases of. B. and F. Med. Rev., Jan. 1850, vol. v, p. 1. Supplement to Mr. A. Walker's Essay on. LAING (Thomas). Lancet, June 9, 1849, p. 610. Diastaltic Nervous System: Croonian Lectures for 1850. HALL (M.) Lancet, vol. i, 1850, pp. 469, 495, 521, 554, 615, 649.

BRAIN, the Sole Centre of the Human Nervous System. LEE (Edwin). Edin. Med. and Surg. J., Jan. 1849, vol. lxxi, p. 60. Use of White and Grey Matters of. SWAN (Joseph). Med. Gaz., May 17, 1850, vol. xlv, p. 845.

SPINAL CORD. SWAN (Joseph). *Ibid.*, April 19, 1850, vol. xlv, p. 669. Art of making Transparent Preparations of, for shewing the Roots of Nerves. SWAN (J.) *Ibid.*, Oct. 12, 1849, vol. xliv, p. 615. Abs. in Lond. Journ. of Med., Dec. 1849, vol. i, p. 1145; also Med. Gaz., Dec. 7, 1849, vol. xliv, p. 967.

NERVOUS CIRCLE of Sir C. Bell. HALL (M.) Lond. Journ. of Med., July 1849, vol. i, p. 613.

CHOROID PLEXUS: Considerations tending to prove that it is the Organ of Sleep. OSBORNE (Jonathan). Med. Gaz., June 8, 1849, vol. xliii, p. 977.

PACINIAN CORPUSCLES; Nervous Papillæ of Vater. STRAHL (J. Carl). Edin. Med. and Surg. J., Jan. 1850, vol. lxxiii, p. 118.

EYE, Anatomy and Physiology of Oblique Muscles of, in Vertebrate Animals. STRUTHERS (John). Edin. Month. Journ., Oct. 1849, vol. iii, N. S., p. 1143. Dimensions and Refractory Power of. FORBES (J. D). Goodsir's Annals, Feb. 1850, p. 44.

RETINA, Luminous Spectra excited by Pressure on, and their Application to the Diagnosis of the Affections of. WALLER (Augustus). Edin. Med. and Surg. J., April 1849, p. 337. Abs. in Lond. Journ. of Med., May 1849, p. 495.

OCULAR SPECTRUM, indicating a Slight Obliquity of the Lens with respect to the Axis of the Eye-Ball. MACDONALD (J. D.) Med. Times, July 7, 1849, vol. xx, p. 5.

OPTICAL EXPERIMENT: means of Ascertaining the Relative Power of the Eye, and indicating the first Onset of Morbid Changes interfering with Vision. MACDONALD (J. D.) *Ibid.*, Sept. 1, 1849, vol. xx, p. 176.

ORGAN OF HEARING, Development and Comparative Anatomy of. MACDONALD (J. D.) Med. Gaz., April 13, 1849, vol. xliii, p. 637. Abs. in Lond. Journ. of Med., Sept. 1849, vol. i, p. 869.

COCHLEA, Office of, as the Special Organ for the Mental Discrimination of the Pitch and Agreements of Musical Sounds. MACDONALD (J. D.) Med. Times, July 28 and Aug. 11, 1849, vol. xx, pp. 70, 113.

TONGUE, Distribution of the Nerves of the. BOURGERY (M.) Lond. Journ. of Med., April 1849, vol. i, p. 358. From Gazette Médicale de Paris, Dec. 16, 1848.

TOUCH, Sense of: its Relation to the Vitality of the Blood. STUART (H. L.) Lancet, May 5, 1849, p. 477.

REPRODUCTION.

PENIS, Membranous Sheath of. BUCK (Gurdon). Amer. Journ. of Med. Sc., Jan. 1849, vol. xvii, N. S., p. 249. From Transactions of American Med. Assoc., vol. i, p. 367. Abs. in Lond. Journ. of Med., 1849, p. 360.

GENERATION and Development of the Invertebrate Animals. OWEN (Richard). Med. Times, 1849, vol. xix, pp. 503, 523, 545, 579, 615, 651: vol. xx, pp. 43, 83, 131, 191, 371, 411: 1850, vol. xxi, pp. 91, 171, 231, 411.

PARTHENOGENESIS, Lecture on. OWEN (Richard). *Ibid.*, April 14 and 21, 1849, vol. xix, pp. 467 and 483.

MISCELLANEOUS.

LECTURES on the Question, Whether New Species of Organized Beings have Appeared since the Creation of Man? FORBES (E.) *Ibid.*, March 10, 1849, vol. xix, p. 373.

Races of Men, Lectures on. Knox (Robert). *Ibid.*, 1849, vol. xix, pp. 247, 315. Contrast between the Bones of the Skull and Face of the Celt and Saxon. Massy (R. T.) *Ibid.*, Jan. 13, 1849, vol. xix, p. 232. Contrast between the Conformation in the Foot of the Celt and the Saxon. Massy (R. T.) *Ibid.*, Feb. 3, 1849, vol. xix, p. 285.

Monstrosities, account of some. Reid (John). Goodsir's Annals, Feb. 1850, p. 27.

Misdeveloped Lower Extremity, Anatomy of. Brinton (W.) Med. Times, Sept. 8, 1849, vol. xx, p. 195.

Thoracic and Abdominal Viscera, Case of Transposition of. Clapp (W.) Med. Gaz., Jan. 25, 1850, vol. xlv, p. 145.

Urinary Bladder, Case of Malformation of. McWhinnie (A. M.) *Ibid.*, March 1, 1850, vol. xlv, p. 360.

Rapid Decomposition of Human Body: Remarks on Putrefaction, and alleged effects of Lime in accelerating that Process. Taylor (A. S.) *Ibid.*, Jan. 5, 1850, vol. xlv, p. 17.

Camel, Anatomy of the Foot of. Harrison (Professor). Dub. Med. P., April 11, 1849, vol. xxi, p. 225.

Chemico-Gelatinous Injection: its Employment in Anatomical Preparations. Goadby (Henry). Lancet, March 17, 1849, p. 287.

CHAPTER V.

MATERIA MEDICA AND PHARMACY.

Materia Medica, Lectures on, at Royal College of Physicians. Bird (Golding). Med. Times, 1849, vol. xix, pp. 487, 565, 617, 635: vol. xx, pp. 24, 136.

General Therapeutics, Lectures on. Maclagan (D.) Edin. Month. Journ., March, April, and May, 1850, vol. i, 3rd S., pp. 272, 352, and 463.

Chemistry of Therapeutics. Review of Pereira, Trousseau, Mialhe, Garrod, and G. Bird. B. and F. Med.-Chir. Rev., April 1849, vol. iv, p. 285: July 1849, vol. iv, p. 128.

Pharmacopœia, National Decimal, Suggestion for a. Hall (Marshall). Edin. Month. Journ., Jan. 1849, vol. iii, N. S., p. 441. Abs. in Lond. Journ. of Med., Feb. 1849, vol. i, p. 209.

Fermented Preparations or Wines. Lane (Butler). Lancet, July 7, 1849, p. 13.

Adansonia Digitata and Adansonine, substitutes for Cinchona Bark and Quinine. Duchassaing (Dr), and Hepburn (R.) Lond. Journ. of Med., Jan. 1849, vol. i, p. 102.

Alcohol, Methyle, Amyle, Cyanogen, and Ammonia. Muspratt (Sheridan). Med. Times, Oct. 20, 1849, vol. xx, p. 317.

Almond-Oil as a Substitute for Cod Liver Oil. Duncan (P. M.) and Nunn (R. S.) Prov. M. and S. Journ., March 20, 1850, p. 164. Abs. in Lond. Journ. of Med., April 1850, vol. ii, p. 398.

Alum, improved use of: New Method of using Gargles. Murray (Sir J.) Dub. Med. P., Jan. 24, 1849, vol. xxi, p. 52.

Camphor, Solution of, in Chloroform. Smith (T. and H.) Lond. Journ. of Med., Jan. 1849, vol. i, p. 102. From Edin. Month. Journ., Nov. 1848.

Chloroform, and Strong Chloric Ether, Effect of as Narcotic Agents. Warren (J. C.) Med. Gaz, April 20 and 27, and May 6, 1849, vol. xliii, pp. 679, 712, and 755. Chloroform, Preparation of. King (James). Lancet, June 16, 1849, p. 641. Purification and Properties of. Gregory (W.) Edin. Month. Journ., May 1850, vol. i, 3rd S., p. 414.

Cinchona Harvest. Von Tschudi (Dr.) Lond. Journ. of Med., March 1849, vol. i, p. 287. From Travels in Peru.

Collodion, History, Preparation, Properties, and Mode of Application of. Lond. Journ. of Med., Feb. 1849, vol. i, p. 206.

Ether Glue, or Liquor Constringens. Schoenbein (C. F.) Lancet, March 17, 1849, p. 289. Abs. in Lond. Journ. of Med. 1849, vol. i, p. 382.

Electric and Magnetic Fluids. Stevenson (W. F.) Lancet, June 8, 1850, p. 693.

Electro-Magnetic Machine with Single Coil, and Counter-Inductive Tube. Wright (Thomas). Edin. Month. Journ., Feb. 1850, vol. i, 3rd S., p. 127.

Iron and Alumina, New Salt of. Murray (Sir G.) Dub. Med. P., March 14, 1849, vol. xxi, p. 162,

Leech, Mechanical, Apparatus for Applying. Tweed (J. J.) Med. Times, Jan. 19, 1850, vol. xxi, p. 36.

Magnesia, Citrate of. Larbaud (M.) Lond. Journ. of Med., April 1849, vol. i, p. 381. From Rép. de Pharm., Feb. 1849.

Prunus Virginiana, Observations on Bark of. Maclagan (D.) Edin. Month. Journ., April 1850, vol. i, 3rd S., p. 375.

Quinine, Method of depriving, of its Bitterness. Thomas (R. H.) Amer. Journ. of Med. Sc., April 1850, vol. xix, N. S., p. 541.

Silver, Nitrate of, removal of Stains of. Collins (Thomas). Dub. Med. P., August 8, 1849, vol. xxii, p. 83.

Sulphur, on the Adulteration of. Bagot (Dr.) *Ibid.*, Dec. 12, 1849, vol. xxii, p. 369.

CHAPTER VI.

HYGIENICS.

Public Hygiene, Lecture on. Royer-Collard (M.) Med. Times, 1849, vol. xix, p. 333.

Tea and Coffee: Influence upon Health of their Introduction in large proportion into the Dietary of Children and the Labouring Classes. Jackson (Samuel). Amer. Journ. of Med. Sc., July 1849, vol. xviii, N. S. p. 79.

Semola as an Article of Diet. Bullock (Lloyd). Lancet, Dec. 15, 1849, p. 627: March 9, 1850, p. 293.

Water supplied to London and Suburbs, Organic Analysis or Microscopic Examination of. Hassall (A. H.) *Ibid.*, Feb. 23, 1850, p. 230.

Winds, Influence of, on the Human Constitution. Atkinson (J. C.) Lancet, vol i, 1849, pp. 207, 318, 533; vol. ii, p. 91. Influence of, in producing Disease. Drummond (James). *Ibid.*, April 14, 1849, p. 410. Levison (J. L.) *Ibid.*, June 23, 1849, p. 682.

Heating and Ventilating Hospitals and other Buildings by Steam and Hot Water. Kirkbride (T. S.) Amer. Journ. of Med. Sc., April 1850, vol. xix, N. S., p. 298.

Sea-Life, Influence of, upon Health. McSherry (R.) Amer. Journ. of Med. Sc., Oct. 1849, vol. xxiii, N. S., p. 404.

Cleanliness, Personal and Domestic, primary influence of, in the Prevention of Typhus, Cholera, etc., compared with that of the Removal of Sewers, Cesspools, etc. Davidson (W.) Edin. Month. Journ., Feb. 1849, vol. iii, N. S., p. 512.

Mortality of the People of England, Inquiry into the Law which governs it. Edmonds (T. R.) Lancet, March 9 and 16, 1850, pp. 297 and 328.

Sanitary State of Metropolis, Suggestions for Improvement of. Merryweather (G.) Med. Gaz., April, 19, 1850, vol. xlv, p. 694.

Malta, Climate of, considered with reference to the Diseases of the Natives, English Residents, and Invalids. Wells (T. S.) *Ibid.*, 1849, vol. xliii, pp. 17, 110.

CHAPTER VII.

FORENSIC MEDICINE.

TOXICOLOGY.

Chemistry of Poisons, or Practical Toxicology, Lectures on: Shewing the Applications of Chemistry to the Discovery of Crime. Letheby (H.) Med. Times, 1849, vol. xx, pp. 1, 22, 49, 103, 134, 171, 211, 231, 391, 447, and 499: 1850, vol. xxi, pp. 31, 71, 132, 251, 291.

Experiments performed by MM. Magendie and Bernard in the College of France. Anderson (W. H.) Amer. Journ. of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 368. (This paper contains the results of experiments on the toxicological effects of strychnia, nicotine, Prussic acid, opium, digitalis, quinine, arsenic, and ether.)

Poisons, Actions of. Blake (James). *Ibid.*, July 1849, vol. xviii, N. S. p. 97.

Poisoning, Cases of, with remarks. Iliff (W. T.) Lancet, Dec. 1 and 15, 1849, pp. 574 and 630. Accidental Poisoning, Case of: Life saved by Neutralizing a Corrosive Acid, and Subduing Subsequent Inflammation. Murray (Sir J.) Dub. Med. P., Feb. 21, 1849, vol. xxi, p. 113. Irritant, Symptoms of: Death: Failure of Chemical Analysis to detect Poison. Maclagan (D.) Edin. Month. Journ., March 1849, vol. iii, N. S. p. 574.

Alcohol, Poisoning with. Williamson (W.) Med. Times, March 17, 1849, vol. xix, p. 395.

Almonds, Essential Oil of, Poisoning by. Iliff (W. T.) Lancet, Dec. 1, 1849, p. 575.

Ammonia, Solution of, Poisoning by: Recovery. Iliff (W. T.) *Ibid.*, Dec. 1, 1849, p. 575.

Antimony, Potassio-Tartrate of, Fatal Poisoning by. Pollock (J. E.) Med. Gaz., May 10, 1850, vol. xlv, p. 801.

Arsenic, Results of Experiments on, by MM. Magendie and Bernard. Anderson (W. H.) Amer. Journ. of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 375. Discovery of Two Antidotes to Poisoning by. Cattell (Thomas). Lancet, Jan. 5, 1850, p. 15. In Agriculture. Fuller (W. H.) Lond. Journ. of Med., Jan. 1849, vol. i, p. 103. From Lancet. In Sulphuric Acid. Davis (A. W.) Prov. M. and S. Journ., Dec. 26, 1849, p. 718. In Unfermented Bread. Med. Gaz., Feb. 22, 1850, vol. xlv, p. 347. Abs. in Lond. Journ. of Med., Feb. 1850, vol. ii, p. 191; also *Ibid.*, April 1850, p. 380. Observations on Sale of, and on Prevention of Secret Poisoning. Tunstall (J.) Prov. M. and S. Journ., August 22, 1849, p. 467. Cases of Poisoning by. De Bartolomé (M. M.) *Ibid.*, Feb. 7, 1849, p. 72. Knott (G. A.) Lancet, July 7, 1849, p. 1. Case: Recovery. Cornish (W. R.) *Ibid.*, Jan. 13, 1849, p. 35. Case: Narcotic Symptoms prominent at commencement. Morehead (C.) Med. Gaz., June 15, 1849, vol. xliii, p. 1055. From Trans. of Bombay Medical Society. Case: Death in thirty-six hours: Influence of Arsenic on Digestion: Remission of Symptoms. Greaves (A. C.) Med. Gaz., April 19, 1850, vol. xlv, p. 677. Case: Silliman (B.) *Ibid.*, May 10, 1850, vol. xlv, p. 831. From British Amer. Journ. Trial and Conviction for Poisoning by. Edin. Month. Journ., March 1850, vol. i, 3rd S. p. 289. Detected in the Remains of a Dead Body Fourteen Years after Interment. Webster (J. W.) Med. Gaz., May 25, 1849, vol. xliii, p. 894. Detected in a Body after Eight Years' Interment. *Ibid.*, July 27, 1849, vol. xliv, p. 168.

Arsenite of Copper in Confectionary, Poisoning by. Fergus (Walter). *Ibid.*, Feb. 16, 1849, vol. xliii, p. 304. Bulley (F. A.) Med. Times, April 28, 1849, vol. xix, p. 507.

Belladonna, Poisoning by. Iliff (W. T.) Lancet, Dec. 1 and 15, 1849, pp. 576, and 631.

Brassica Napus or Wild Corn Kale, Toxicological Effects of. Popham (John). *Ibid.*, Dec. 15, 1849, p. 635. Abs. in Lond. Journ. of Med., Feb. 1850, vol. ii, p. 192.

Cantharides, Acquittal on a Charge of Administering. Med. Gaz., Dec. 28, 1849, vol. xliv, p. 1105. Powdered, two cases of Poisoning by. Saunders (G.) Med. Times, Feb. 3, 1849, vol. xix, p. 287.

Carbonic Acid, Poisoning by: Recovery. Thompson (Henry). Dub. Med P., Jan. 31, 1849, vol. xxi, p. 69.

Cayenne Pepper, Poisoning by. Snape (R. F.) Med. Times, May 12, 1849, vol. xix, p. 553. Inflammation and Ulceration of Stomach from. Pickop (Eli). Prov. M. and S. Journ., Feb. 20, 1850, p. 93.

Chloroform, Death from, during a Surgical Operation. Solly (Samuel). Med. Gaz., Nov. 2, 1849, vol. xliv. p. 757. Alleged Death from, at Leeds. *Ibid.*, Nov. 16 and 23, 1849, vol. xliv, pp. 804 and 905. Death from, in Jamaica. Edin. Month. Journ., April 1850, vol. i, 3rd S., p. 377. From Jamaica Despatch. Unintentional Suicide by. Jeffreys (J.) Edin. Month. Journ., March 1850, vol. i, 3rd S., p. 287. From Boston M. and S. Journ. Discussion on deaths from, in the Académie de Médecine of Paris. Lond. Journ. of Med., March 1849, vol. i, p. 303. Remarks on. Snow (John). *Ibid.*, April 1849, vol. i, p. 324. On Fatal Cases of Inhalation of. Snow (John). Edin. Med. and Surg. J., July 1849, vol. lxxii, p. 75; and Lond. Journ. of Med., Nov. 1849, vol. i, p. 1062. Effects of, as a Narcotic Agent. Warren (John C.) Amer. Journ. of Med. Sc., April 1849, vol. xvii, N. S., p. 379. [An examination of the fatal cases which had resulted from the use of Chloroform.] New Method of Remedying Accidents caused by. Ricord (M.) Lancet, Feb. 16, 1850, p. 209.

Cinnamon, Poisonous effects of Essential Oil of. Mitscherlich (G. C.) Med. Gaz, Nov. 23, 1849, vol. xliv, p. 911. From Œsterr. Wochenschrift.

Coals, Smoke of, Danger of Exposure to. Tayler (M. W.) Med. Gaz., June 1, 1849, vol. xliii, p. 937.

Coloured Confectionary, cases of Poisoning by: Remarks. Letheby (H.) Med. Times, June 1, 1850, vol. xxi, p. 399. See also Arsenite of Copper.

Creasote, case of Poisoning by. Macnamara (Mr.) Dub. Med. P., March 7, 1849, vol. xxi, p. 150.

Croton Oil applied to Human Hair, Effects of. King (George). Prov. M. and S. Journ., Feb. 21, 1849. p. 98.

Digitalis Purpurea, Poisoning by Root of. Edward (James). Lancet, July 14, 1849, p. 31. Recovery from Large Dose of. De Colleville (M.) Med. Gaz., May 11, 1849, vol. xliii, p. 835. From Journ. de Méd. de Bourdeaux. Tincture of, influence of Large Doses of in Cases of Insanity. Jones (G. M.) Med. Times, May 19, 1849, vol. xix, p. 568.

Ether, Results of Experiments on by MM. Magendie and Bernard. Anderson (W. H.) Amer. Journ. of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 375. Deaths from Inhalation of. Eve (R. F.) *Ibid.*, July 1849, vol. xviii, N. S., p. 293. From South. Med. and Surg. J., June 1849.

Guano, presumed Poisonous Effects of. Wearne (J.) Lancet, June 29, 1850, p. 774.

Hydrochloric Acid, Poisoning by: Recovery: Carbonate of Soda as an Antidote. Med. Gaz., Dec. 28, 1849, vol. xliv, p. 1098.

Hydrocyanic Acid, Results of Experiments on, by MM. Magendie and Bernard. Anderson (W. H.) Amer. Journ. of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 370. Poisoning by, Case illustrative of Treatment and Fatal Dose. Christison (R.) Edin. Month. Journ., Feb. 1850, vol. i, 3rd S., p. 97. Abs. in Lond. Journ. of Med., April 1850, vol. ii, p. 397.

Lead Poisoning at Claremont. Mussy (H. Gueneau De), Dub. Quart. J., May 1849, vol. vii, N. S., p. 405. Same author in Arch. Gén. de Méd., July 1849, p. 283. Case: Recovery. Dalton (J. C.) Amer. Journ. of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 356. Flour, Poisoned with, at Stourbridge. Bancks (Thomas). Lancet, May 5, 1849, p. 478. Norris (W.) *Ibid.*, August 25, 1849, p. 205. Sulphate of, Toxicological Properties of. Pleischl (Dr.) Med. Gaz., Dec. 14, 1849, vol. xliv, p. 973. From Œsterr. Medicin. Jahrbücher.

Lime, Action of, on Animal and Vegetable Subsances. Davy (John). Med. Gaz., Jan. 25, 1850, vol. xlv, p. 172. From Jameson's Edin. Journal.

Lobelia Inflata, Case of Poisoning by: Trial. Med. Gaz., August 31, 1849, vol. xliv, p. 383. Supposed Death from, at Northampton: Inquest. Prov. M. and S. Journ., June 26, 1850, p. 355.

Nicotine, Experiments on by MM. Magendie and Bernard. Anderson (W. H.) Amer. Journ of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 369.

Nux Vomica, Poisoning by: Recovery. Iliff (W. T.) Lancet, Dec. 15, 1849, p, 630.

Opium, Experiments on, by MM. Magendie and Bernard. Anderson (W. H.) Amer. Journ. of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 371. Habitual Use of. Little (R.) Edin. Month. Journ., June 1850, vol. i, 3rd S., p. 524. Christison (R.) *Ibid.*, p. 531. Poisoning by: Successful Treatment by Electro-Galvanism. Iliff (W. T.) Lancet, March 24, 1849, p. 314. Tincture of, Cases of Poisoning by. Iliff (W. T.) Lancet, Dec. 1, 1849, p. 574. Case, in the advanced stage, successfully treated by Bleeding. Hughes (James S.) Dub. Quart. J., Nov. 1849, vol. viii, N. S., p. 446. Poisoning by: Detection of Morphia: Absence of Meconic Acid in Fluid Contents of Stomach. Osborn (H.) Med. Times, March 17, 1849, vol. xix, p. 397.

Oxalic Acid, Case of Accidental Poisoning by. Med. Gaz., March 30, 1849, vol. xliii, p. 569. Poisoning by: Detection in the Heart. Osborn (H.) Med. Times, Feb. 16, 1850, vol. xxi, p. 115.

Quinine, Experiments on by MM. Magendie and Bernard. Anderson (W. H.) Amer. Journ of Med. Sc., Oct. 1849, vol. xviii, N. S., p. 372.

Rhus Venenata or Poison-Sumach, Effects of. Stratton (Thomas). Edin. Med. and Surg. J., April 1850, vol. lxxiii, p. 327.

Rumex Acetosa, Injurious Effects of. Hanks (Henry). Med. Gaz., June 22, 1849, vol. xliii, p. 1094.

Strychnia, interesting Experiment with by Professor Agassiz. Wells (David). Amer. Journ. of Med. Sc., April 1850, vol. xix, N. S., p. 547. Results of Experiments on, by MM. Magendie and Bernard. Anderson (W. H.) *Ibid.*, Oct. 1849, vol. xviii, N. S., p. 368. Poisoning by, relieved by Chloroform. Dresbach (Dr.) *Ibid.*, April 1850, vol. xix, N. S., p. 546.

Sulphuric Acid, Case of Poisoning by. Walker (John). Edin. Month. Journ., June 1850, vol. i, 3rd S., p. 538.

Verdigris intermixed with Food: Acute Inflammation of Stomach and Bowels. Moore (Mr.) Med. Gaz., Sept. 21, 1849, vol. xliv, p. 487.

Zinc, Chloride of, Cases of Poisoning by. Stratton (Thomas). Dub. Med. P., Jan. 3, 1849, vol. xxi, p. 7. From Brit. Amer. Journ.

MISCELLANEOUS TRIALS AND INQUESTS.

Death from Injury of Head, Medico-Legal Report on Case of. Easton (J. A.) Edin. Month. Journ., March 1849, vol. iii, N. S., p. 586.

Alleged Murder from Wounds of Genital Organs in a Female. Ogston (F.) Med. Gaz., Nov. 9, 1849, vol. xliv, p. 813.

Alleged Rape and Murder. Ogston (F.) *Ibid.*, Jan. 4 and 11, 1850, vol. xlv, pp. 38 and 72.

Homœopathy, Alleged Case of Manslaughter by: Trial. *Ibid.*, Nov. 2, 1849, vol. xliv, p. 773.

Malapraxis: Death and Inquest. Pearson (J.) Lancet, May 5, 1849. p. 475.

Homicide or Suicide, Case involving question of. Robbs (W.) Med. Gaz., Sept. 7, 1849, vol. xliv, p. 414.

PSYCHOLOGY.

Connexion between Physiology, Psychology, Natural Theology, and other Sciences. Ogilvie (G.) Psych. Journ., April 1849, vol. ii, p. 309.

Letter to Lord Chancellor from Commissioners in Lunacy, with Reference to their Duties and Practice. *Ibid.*, Oct. 1849. vol. ii, p. 608.

Law of Lunacy, Report of Society for promoting Amendment of. *Ibid.*, Jan 1849, vol. ii, p. 178. Amendment of. Robinson (George). Med. Gaz., Sept. 14, 1849, vol. xliv, p. 448.

Crime, Analysis of. Horne (R. H.) Psych. Journ., Jan. 1850, vol. iii, p. 94

Juvenile Delinquency and Degeneration in Upper Classes of Society. Bush (W. M.) *Ibid.*, July 1849, vol. ii, p. 428.

Human Mind, considered in some of its Medical Aspects. Harrison (J. B.) *Ibid.* April 1850, vol. iii, p. 246.

Madness as treated by Shakspeare. Horne (R. H.) Psych. Journ., Oct. 1849, vol. ii, p. 589.

Commissions in Lunacy: Cases. *Ibid.*, July 1849, vol. ii, p. 468 *et seq.*

Insanity. Croonian Lectures for 1849. Conolly (John). Lancet, vol. ii, 1849, pp. 387, 415, 443, 469, 495, 521. Medico-Legal Relations of. B. and F. Med. Chir. Rev., April 1850, vol. v, p. 372. Impulsive Insanity: the French Vampire. Sigmond (G. G.) Psych. Journ., Oct. 1849, vol. ii, p. 577. Partial Insanity. Brougham (Lord). *Ibid.*, April 1849, vol. ii, p. 323. (From the Jurist.) Transient Insanity. *Ibid.*, April 1849, vol. ii, p. 329. Puerperal Insanity, Statistics, Pathology, and Treatment of. Webster (John). Lond. Journ. of Med., Oct. 1849, vol. i, p. 971.

Plea of Insanity: Reports of Criminal Cases. Psych. Journ., April 1849, vol. ii, p. 331 *et seq.*

Instinctive Imposture, Cases of. Kinglake (Hamilton). Edin. Month. Journ., Jan. 1850, vol. i, 3rd S., p. 36.

Supposed Demoniacal Possession, Case of. Psych. Journ., July 1849, vol. ii, p. 462: and April 1850, vol. iii, p. 262.

Double Consciousness connected with Hysteria, Case of. Ward (T. O.) *Ibid.*, July 1849, vol. ii, p. 456.

Trance, or Human Hybernation. Braid (James). Med. Times, 1850, vol. xxi, pp. 351, 401, 416.

Nervous, Spasmodic, and Convulsive Diseases, Psychology of. Smith (W.) Med. Gaz., May 10, 1850, vol. xlv, p. 795, 976.

Cretinism in Switzerland. Coldstream (Dr.) Edin. Month. Journ., June 1850, vol. i, 3rd S., p. 594.

Mental Disease, Causes and Morbid Anatomy of. Webster (John). Med.-Chir. Trans., 1849, vol. xxxii, p. 115; and Lond. Journ. of Med., July 1849, vol. i, p. 686. Pathological Appearances observed in the Bodies of the Insane. Hitchman (John). Psych. Journ., April 1850, vol. iii, p. 228.

Brain, Essential Pathological Conditions of, in Insanity. Palmer (Edward). Lancet, August 4, 1849, p. 119. Softening of, from Anxiety and Undue Mental Exercise, resulting in Impairment of Mind. Winslow (Forbes). Monograph in Psych. Journ., July 1849, vol. ii. Abs. in Lond. Journ. of Med., Aug. 1849, vol. i, p. 776.

Blood in Neuroses, Chemical Investigation of. Michéa (M.) Trans. of Memoir presented to Acad. of Sciences at Paris. Psych. Journ., Jan. 1849, vol. ii, p. 118.

Lunacy and Lunatic Asylums, Present State of: Nature and Treatment of Mental Derangement. Smith (W.) Med. Gaz., vol. xlv, p. 58, 271, 316, 447, 627.

Medical Topography, as connected with the Choice of a Site for a Lunatic Asylum in a Tropical County. Macfadyen (James). Edin. Med. and Surg. J., Jan. 1849, vol. lxxi, p. 114.

Insane, Practical Observations on the Treatment of. Smith (William). Med. Gaz., Feb. 2, 1849, vol. xliii, p. 189: vol. xliv, pp. 464, 708, 846, 1007.

Solitary Confinement, Effect of, on Insane. Winslow (F.) Psych. Journ., Jan. 1849, vol. ii, p. 115.

Sedative Treatment of Insanity. Psych. Journ., April 1849, vol. ii, p. 319.

Opium as a Therapeutic Agent in Insanity. Michéa (M.) Lond. Journ. of Med., April 1849, vol. i, p. 392. From l'Union Médicale, 15 Mar. 1849.

Cretinism, Treatment of. Guggenbuehl (Dr.) Lond. Journ. of Med., April 1849, vol. i, p. 388. From Annales Méd.-Psych, Nov. 1848.

CRITICAL DIGEST OF THE BRITISH AND FOREIGN MEDICAL JOURNALS.

ANATOMY AND PHYSIOLOGY.

MR. H. GRAY ON THE DEVELOPMENT OF THE RETINA AND OPTIC NERVE.

The following observations are intended to demonstrate the evolution and mode of development of the Retina in the embryo chick, and they will, I think, confirm in a most striking manner the account that has been given of the structure of this part by Mr. Bowman, in his Lectures on the Anatomy of the Eye.

Development of the Retina. It is not until the thirty-third hour of the incubation of the chick, that there is any indication of the evolution of the Retina or of the rudimentary eye. At the thirty-firsth our, the cephalic extremity of the embryo is indicated by a slight dilatation, but no protrusion can be observed in the situation where the eye is to be formed. At the thirty-third hour, there is, on each side of the cephalic extremity, a protrusion of its walls. At the thirty-sixth hour, this has become elongated and protruded outwards, presenting a somewhat dilated end, and being slightly constricted at its connexion with the cerebral cell from which it arises. The whole embryo is now enlarged, and there is a distinct division of the brain into its several primitive cells ; this protrusion is the first distinct indication of the mode of development of the Retina. In a chick, examined at the forty-sixth hour, from the cerebral aspect, the future brain consisted of several cells ; the anterior, which was the largest, corresponded to the cerebral lobes ; the middle, smaller in size, to the future optic lobes ; and the posterior, the smallest, but most elongated, to the medulla oblongata. From the most anterior one, there arose a protrusion on each side, having a somewhat dilated extremity : this protrusion I will call the optic vesicle. The cavity of the cerebral cell, from which it arose, was very distinct, and its wall clear and pellucid, appearing to communicate with the optic vesicle, which was also hollow.

As the cavity of the cerebral cell passed outwards into the optic vesicles, it became less distinct, the wall of the vesicle being darkly granular, whilst the cavity in the cerebral cell itself was distinctly seen, from the thinness of its wall on its ventral aspect. If the embryo be examined from its dorsal surface (its natural position in the egg), the cerebral cell presents an external convex surface, whilst, projecting from each side, are seen the optic vesicles. The cavity of the cell, and its communication with the optic vesicle, cannot on this surface be distinctly demonstrated, on account of its wall being thicker than on the ventral side. The optic vesicle is bounded externally by a well-defined line, which lines the outer surface of the protrusion, and seems to be connected with the envelopes of the cerebral mass ; this is again bounded by the tegumentary layer of the embryo. When examined with a high magnifying power, the vesicle presented a pale granular texture without any indication of cellular structure. This description of the origin of the Retina, although confirmed by similar observations, described by Baer in the *Encyclopédie Anatomique*, tom. viii., is not in accordance with that of Wagner and Huschke. From many observations, I could never see what these observers have described ; and my conclusions regarding the origin of the Retina would seem to be confirmed by the coincidence of my observations with those of Baer. On examining a chick at the fifty-fifth hour of incubation, the cavity, in the anterior cerebral cell, was much less apparent ; the walls of the cell also now not only projected upwards but laterally, so as partly to cover the inner portion of the protruded optic vesicle, which at the

second day was so distinctly seen ; the head had also become more curved, which rendered a good examination of the eye somewhat difficult. On obtaining a view from above downwards, the embryo lying on its ventral surface, the outer portion of the protruded vesicle was distinctly seen, bounded by a clear defined inner border and an outer paler one ; the dark inner one was lost in the dark granular mass, which, by its circular form, indicated the rudimentary eye ; the outer layer was the external tegumentary membrane of the embryo. At the sixty-second hour, the optic vesicle appears to be situated between the anterior and middle cerebral cells ; this, I believe, depends on the great increase of development of these cells, and the curved form which the head now assumes, making its apparent origin to be from both, as stated by Wagner. On carefully examining it, the exterior dark line was beautifully defined all around, and presented the appearance of an outer covering to the eyeball ; in this apparent cavity was seen a pyriform vesicle, the future Retina, presenting a distinct outline, except at its inner side, where it became constricted and of a tubular form, and, to all appearance was continuous with the cerebral mass ; this constricted portion, the tubular end, I suppose to be the optic nerve, the dilated portion the Retina. Internal to the Retina was the circular crystalline lens, with its central but indistinct nucleus. Huschke describes the capsule of the lens as being an inverted portion of the common integument, which pushes inwards the dilated end of the optic vesicle, and thus forms a double layer ; the outer one he describes as Jacob's membrane, the inner inverted one the true Retina. In order to ascertain the correctness of this statement, I examined the eye at four successive periods between the second and third days, at the forty-eighth, fifty-fifth, sixty-second and seventy-second hours. I examined the embryos laterally, and also on their dorsal and ventral aspects ; and if the lens had been an inversion of the integument pressing in the dilated end of the optic vesicle, both the latter positions would have been most favourable for demonstrating it. The lens is, however, formed in quite a different manner ; it is first seen as a rather ill-defined granular mass in the cavity of the vesicle itself, containing in its centre a nucleus : this is seen on the first half of the third day. On the third day, it becomes more distinct, a well-defined line now bounds its margin ; between the fourth and fifth days, the granules become darker and more aggregated towards the centre, leaving a space bounded by a dark outer line : this is now the capsule of the lens, the inner one the bounding margin of the lens itself. Nor could I ever see satisfactorily any doubling-in of the Retina so as to form two layers, for in no position that I put the embryo, in each of the several examinations that I made, could I ever detect but a single layer ; and besides, as I shall show hereafter, Jacob's membrane is not developed until a much later period. Bischoff, on this point, says, "Je dois avouer qu'il m'a été impossible même chez de très jeunes embryons de chien, de lapin, et de rat, d'apercevoir sur la face antérieure de l'œil aucune trace d'une semblable intromission des téguments extérieurs, quoique dans certains cas, je sois resté incertain de savoir s'il existait déjà une capsule cristalline et un cristallin."[1]

At the seventieth hour, the circular outline of the eyeball has become quite distinct externally, and the line may also be traced internally, where previously it was only indicated by the dark circular granular mass, the forming eyeball. The lens is also more distinctly seen, bounded by its well-defined circular border, indicating its forming capsule, and the nucleus in its centre is plainly visible. When examined on its under surface, the original protrusion is seen to have become still more pyriform in shape and more constricted at its inner part, so that the more dilated portion now clearly resembles the future Retina, the constricted and tubular portion the optic nerve ; the more gradual contraction of this protrusion and separation

[1] Anatomie Encyclopédie, tom. viii, p. 324.

of it from the cerebral mass is also now more clearly seen. The cavity, which on the second day existed in the cerebral cell, and communicated with the protrusion, is now closed in, with the exception of a distinct fissure, which, commencing by curved borders at the margin of the lens, is continued inwards in the direction of the cerebral mass through the tubular portion of the protrusion.

The fissure seems connected (as Bischoff also supposes) with the separation which is effected between the ocular vesicle and the pedicle by which it is connected with the cerebral cell, the fissure at first being wide, and extending as far as the anterior part of the eye, at its inferior and inner side ; but, as the tubular portion of the protrusion becomes more solidified and converted into the true optic nerve, the fissure becomes much narrowed. No doubt this is analogous to the fissure which exists permanently in the Retina and optic nerve in fishes, as is seen in the cod. In the turtle the fissure exists in the nerve, though not in the Retina ; whilst in birds it appears to be the same slit which is here described, through which the pecten gains admission into the interior of the eye.

On the first half of the fourth day, the whole organ seemed increased in size : the exterior lamina was distinctly continuous all round, of a dark granular texture ; the second layer, the Retina, presented a different appearance to what was seen on the third day. It had become more spherical in shape and increased in size ; it now appeared to commence at the margin of the lens, which was situated at the more anterior part of the eye ; it could not be traced around it, as in some of the preceding observations, but only overlapped it slightly by a thin beveled border, so that it appeared, that the most external part of the original protruded vesicle had become absorbed to complete the formation of this rapidly developing membrane. The tubular portion of the original protrusion (the optic nerve), from the great development of the cerebral mass, was hidden from view.

On the fourth day, the eye had become more spherical in form. The outer envelope was distinct, and darkly granular ; it appeared now to terminate at the edge of the lens, whilst a paler line could be traced over this body,—an evident indication of the formation of the sclerotic and cornea. The Retina was now less distinctly marked, on account of the dark granular tinge beneath the outer envelope; from the formation of the pigment in the epithelial cells of the choroid, it could now only be traced to the edge of the lens, not overlapping it as in the last examination. A distinct fissure was still perceptible on the under surface.

On the fifth day, the eye had greatly increased in size ; and, along its under surface, the fissure was seen running, from its anterior part at the margin of the lens, to a line which bordered the back part of the sclerotic ; the capsule of the lens was distinctly formed, and separate from the lens itself. Both optic nerves were seen : they were tubular in form, and presented a pale granular appearance ; they passed inwards, in the direction of the under surface of the corpora quadrigemina ; but they were not united together in the chiasma until the seventh day. At this period, on making a vertical section of the organ, the Retina was, with the naked eye, distinctly observed to arise from the margin of the lens, and could be detached from the other membranes as a perfectly distinct and separate layer.

From these observations it is seen, that the Retina is originally a protrusion from the anterior cerebral cell, being hollow, and communicating with its cavity ; that, as the progressive development of the brain takes place, the optic vesicle becomes more separated from its parent cell, and assumes a pyriform shape, presenting a dilated extremity (the future Retina), and a tubular portion (the optic nerve). In progress of development, a fissure is observed on its under surface, which is evidently connected with the separation which is effected between the ocular vesicle and the tubular pedicle (the optic nerve), which connects it with the cerebral cell. As this tubular pro-

longation becomes solidified, so as to form the optic nerve, no communication can be traced between the optic vesicle and the cavity from which it is an offset. By degrees, the spherical end of the protrusion is absorbed, and the Retina, now fully formed, becomes attached to the margin of the lens, having previously completely surrounded that body. The optic nerve can then be seen not only to be connected to the anterior cerebral cell, but, uniting with its fellow at the under surface of the optic lobes, is seen partly to terminate in those bodies.

Retina of the Chick at the Eighth Day of Incubation. The Retina may, at this period, be distinctly separated, as a thin transparent layer from the other membranes. Its choroidal surface appears to be composed of a closely-aggregated mass of globular nuclei; these bodies are about the size of the red corpuscles of the blood, and form about one-half of the entire thickness of the membrane. They apparently correspond to the 'agglomerated granules', mentioned by Bowman as forming a considerable portion of the membrane in the normal state: they are highly refractive, and of a slight yellow tinge. The deep surface of the membrane consists of some fine granular matter, and a mass of pale and exceedingly delicate nucleated cells, precisely similar to those surrounding the meshes of the fibrous lamina in the normal structure of the membrane. No trace, at this period, exists of either the membrana Jacobi, or the fibrous lamina of the Retina.

Development of the Membrana Jacobi. Between the thirteenth and fourteenth days, the choroidal surface of the Retina presents an exceedingly fine, pale, granular stratum, which covers in the 'agglomerated granular mass' beneath. On the fifteenth day, numerous exceedingly minute and highly-refractive yellowish granules are imbedded in it; they vary in size, from the 5000th to the 8000th part of an inch in diameter, and around some of these a fine delicate cell-wall can be traced. If a good view can now be obtained, this surface presents the appearance of a delicate epithelial layer. This I believe to be the first stage in the development of Jacob's Membrane; for, on the eighteenth day, the cells, which were previously of a circular form, have now become elongated,—some being of an oval shape, whilst in others the almost perfect rod-like body is formed. They now lie in a slightly imbricated manner, and their nuclei, which are of a bright yellow colour, are placed at the apices of the rods: in some cases, however, they occupy the middle of these bodies; their deep ends are larger than their choroidal ends, and are strongly attached by this surface to the 'agglomerated granular layer' beneath. So intimate is their connexion, that it is difficult to get a good view of a single rod, probably on account of their perfect separation from this layer not having yet taken place. On the twenty-first day, Jacob's Membrane is similar to what is seen in the full-grown bird: the rods are now closely packed together, standing perpendicularly upwards, and all of an elongated cylindrical form, their tips being occupied by the brilliant yellow bodies before noticed.

Development of the Fibrous Lamina. The first trace of the Fibrous Lamina is seen between the fourteenth and fifteenth days. On examining the deep surface of the Retina at this period, it is seen to be composed of a very fine pale granular lamina, marked by numerous faint longitudinal striæ: on the eighteenth, this lamina, when separated from the rest of the membrane, is composed of numerous fibrillated bundles, which, interlacing with each other, form numerous meshes, in which are deposited the gray nucleated vesicles, which are seen as early as the eighth day. On the twenty-first day, this lamina presents the same structure as is found in the full-grown bird.

The preceding observations can, I think, be applied in explanation of some lately disputed points in connexion with the anatomy and physiology of the Retina and Optic Nerve.

The Retina has been seen to arise as a protrusion from the cells forming the future brain. Bowman states the vesicular layer of the Retina to be analogous to the vesicular layer of the hemisphere of the brain, whilst Henle, and other anatomists of great note, consider the elements of this layer to be more analogous to epithelium. From the circumstance of the Retina arising, as it undoubtedly does, from the cerebral cells, being in fact part of them and performing a similar function, we have, I think, a great proof of the similarity in the structure of these two parts. There is another point also, which proves that the opinion of some modern anatomists is incorrect, in stating that none of the fibres of the optic nerve can be traced to the optic thalamus. The origin of the retina is from the anterior cerebral cell, and, at a future period, the optic nerve can be traced uniting with its fellow of the opposite side beneath the optic lobes. It is in the anterior cerebral cell that the thalamus is subsequently formed, which makes it exceedingly probable that some of the fibres of the optic nerve are connected with it, although the greater majority may be traced to the optic lobes.

These facts are of some importance, and prove how deductions, formed from microscopic embryology, may be applied to confirm dissections or microscopic investigations made on the same parts in the mature animal. [Abridged from *Philosophical Transactions*, part i, 1850.]

MR. H. GRAY ON THE DEVELOPMENT OF THE MEMBRANOUS LABYRINTH AND AUDITORY NERVE.

The essential part of the Membranous Labyrinth and Auditory Nerve consists, like the retina, of a fibrous lamina formed of the terminal axes, cylinders of the nerve tubules, or of terminal loops of nerves, which are in intimate relation with a layer of dark and closely-set nucleated cells, not unlike those found lying between the meshes of the fibrous lamina of the retina; like it also, it may be regarded as a protruded portion of the brain, modified somewhat in its texture, and connected with an appropriate apparatus, which receives and transmits its peculiar impressions. The following observations are intended to demonstrate the mode of development of this membrane; and they not only confirm the description given of the structure of this part, but show the striking analogy which exists between it and the retinal expansion.

At present, two opinions exist regarding the evolution of the ear-bulb. It is stated by Baer, that it arises soon after the eye, in the form of a tubular prolongation of the brain, communicating with the cavity of the fourth ventricle, its peripheral extremity forming a vesicular dilatation, which is gradually separated from the brain. Into this vesicle, which is the analogue of the labyrinth, there is protruded inwards a reflection of the integument, which forms all the accessory parts of the organ of hearing. Huschke's account is entirely different; he says that the Membranous Labyrinth does not arise from the brain, but is originally a blind sac of the skin with an excretory duct, which, gradually contracting, is at last separated from the common integument, and exists as a separate sac beneath it. The following observations coincide partly with the description given by Baer; at the same time, I shall state some facts which, I believe, have not been previously noticed.

Development of the Auditory Nerve. In the embryo chick at the fiftieth hour, the medulla oblongata presented, above, a large open shallow cavity, the analogue of the fourth ventricle. At the cephalic extremity, it communicated with the optic lobes and the anterior cerebral cell, by a small circular orifice. From the central part of the wall of this cavity, and exactly opposite to the second branchial cleft, the first rudiment of the auditory sac was visible, in the form of a small protruded vesicle of a somewhat flattened circular shape; this vesicle was hollow, clear, and pellucid, and communicated with the ventricular cavity by a small circular orifice. This communication was

most distinctly seen on examining the embryo from the dorsal aspect. In order to satisfy myself of the correctness of this observation, and to test the accuracy of Huschke's statement, I examined numerous embryos every second hour, from the thirty-sixth hour to the time when the above appearances were observed, but in none could I detect a protrusion of the tegumentary layer in that situation ; and, coinciding as my observations do with those of Baer as regards the origin of this membrane, they justify, I think, the conclusions which are above stated.

At the fifty-sixth hour, the auditory vesicle occupies its usual position ; it has become, however, increased in size, and has assumed a pyriform shape, so that now it presents a narrow contracted tubular portion, the rudiment of the Auditory Nerve, and a dilated spherical extremity, the auditory sac, or rudimentary vestibule. This latter portion projects into and becomes encased by the muscular and tegumentary layers of the embryo, forming a distinctly marked projection beneath the integument ; the vesicle itself has become darkly granular and more opaque, but the cavity in its interior is still distinctly seen communicating with the ventricular cavity, through the tubular prolongation of the vesicle (the Auditory Nerve) ; the aperture of communication is however much smaller, having become more contracted, and this contraction apparently increases as the separation between the auditory vesicle and its parent cell takes place. At the sixty-fifth hour, the ear-bulb has increased considerably in size, and a more marked separation is now seen to exist between the Auditory Nerve and the expanded vestibular sac ; the latter has assumed an oval shape, and is now directed slightly backwards, the cavity in its interior still existing ; but the Auditory Nerve has become now quite solidified, so that no communication exists at this period between it and the ventricular cavity. From the description which I have already given, a marked similarity may be observed between the origin of this membrane, and that of the retina and optic nerve ; these parts arise in both cases as a protruded portion of the cerebral mass, being hollow, and communicating with the cavity of the parent cell ; in process of time, a gradual separation takes place between them and the parts from which they arise ; they then assume a pyriform shape, but still commmunicate with the cerebral cavity ; as, however, the nerve becomes solidified and more fully formed, and the separation between them is more fully effected, then no communication can be traced between the two cavities. It is in this stage of the development of the auditory apparatus in the bird, that a remarkable similarity is to be observed between it and the normal condition of the same part in some of the lower animals. There are in fact now formed the two elementary portions of this apparatus, the Auditory Nerve and its vesicular bulb (the analogue of the vestibular sac). Such is the simple condition of this organ in the crustacea and in the cephalopod mollusks.

Development of the Membranous Lining of the Semicircular Canals. At the seventy-second hour, the vestibular sac has become more distinctly separated from the cavity from which it originated, but is connected with it by the auditory nerve, which is fully formed and of large size ; the vesicle is still quite hollow, and contains a thin limpid fluid ; but its oval form is lost, from a distinct contraction of its apparent entire circumference, which is observed about its centre ; this contraction is seen to exist both on the outer and also on the inner wall, and is the first indication of the separation of the vestibule from the membranous semicircular canals, which are ultimately formed from the terminal portion of the vesicle. At the eighty-second hour, the contraction is observed to have become more marked, so as partially to subdivide the vestibular sac into two unequal portions ; the lower one, that connected with the auditory nerve, is the future vestibule, the upper terminal one being developed into the semicircular canals ; the cavity still exists in the interior of the vesicle, and the auditory nerve has increased in size. At the close of the fourth day, the terminal bulbous portion of the ori-

ginal vestibular sac has become very considerably enlarged, and of an oval elongated form; the contraction originally existing and separating it from the vestibule itself has increased very considerably, so that now a well-marked separation is seen to exist, although both cavities communicate with each other. A slight depression or shallow pit is now observed to exist at the end of the terminal vesicle, which soon becomes very distinct. This, I believe, indicates the first rudiment of one of the semicircular canals; no trace of the folding-in or depression of the integument in this situation could be observed.

About the sixth day, this depression is more marked, and it is apparently from the amalgamation of this reflected portion and the inner wall of the vesicle with each other, that the membranous semicircular canals are formed. At first they appear to retain the same diameter throughout, but between the twelfth and thirteenth days they become somewhat contracted in parts, leaving some portions of their original diameter: it is these that apparently ultimately form the ampullæ. At about the same period, a cartilaginous nidus is deposited on the outer side of the membranous labyrinth, which is soon developed into the various parts of the osseous labyrinth: at the same time also a small quantity of calcareous matter is deposited in the vestibular sac. It is interesting to observe, that the membranous labyrinth, between the eighth and thirteenth days, like the retinal expansion of the same period, consists of a distinct but very delicate fibrous mesh, in the spaces between which are deposited a quantity of granular matter and numerous nucleated cells, its exterior surface being composed of a dense mass of nuclei, almost precisely analogous to the "agglomerated granules" which form so large a portion of the entire substance of the retina.

From the preceding observations, the following conclusions may be drawn. The Membranous Labyrinth, like the retina, is a protruded portion of the brain, being hollow and communicating with the ventricular cavity from which it arises. As the progressive development of the brain proceeds, the auditory sac becomes more elongated and of a pyriform shape, the dilated portion being analogous to the vestibule, the contracted tubular portion to the Auditory Nerve; this subsequently becomes solid, and the cavity in the vestibule does not then communicate with the ventricle, from the wall of which it is an offset. This representative of the normal condition of the organ in some of the lower animals, now takes on a higher form of development; for the membranous semicircular canals are now added to the vestibule, being formed by a contraction, and, subsequently, a folding inwards and union of a portion of the walls of the vesicle itself; lastly, the walls of these canals becoming in parts contracted, the dilated ampullæ are formed. [*Philosophical Transactions*, Part I, 1850.]

HORN ON THE TERMINATION IN LOOPS OF THE OLFACTORY NERVES.

Like the auditory and optic nerves, the Olfactory Nerve forms loops at its peripheral extremity. This can be observed in the nasal mucous membrane of the frog. If a piece of this be removed, with a part of the trunk of the Olfactory Nerve adhering to it, and viewed between two flat pieces of glass with a magnifying power of 216 or 300 diameters, the Olfactory Nerve is observed to divide into twigs; these, at their peripheral extremity, partly form club-shaped figures, and partly are extended into large segments of a circle. On the periphery, they are looped, and run back to the original stem. Stellated pigment-cells and ciliated epithelium are laid over the expanded nerve-fibres. A few twigs of other nerves, of wider diameter, are also found imbedded here and there in the mucous membrane. These have the properties of the finer cerebral nerves. [*Müller's Archiv.*, 1850, Heft. 2, p. 74.]

CALCAREOUS TUMOUR OF CRANIUM IN A CHILD: RELATION OF DEVELOPING FUNCTION OF THE CEREBELLUM TO OSSIFICATION.

In the *Medical Times* for August 17, 1850, Mr. R. F. Battye, of Pimlico, relates the case of a child, 12½ months old, who had a tumour on the left side of the head, immediately below the parietal eminence, and extending to the base of the mastoid process, and to within an inch of the occipital protuberance; and anteriorly to about the centre of the squamous portion of the temporal bone. It was at first soft and fluctuating; but earthy matter was gradually deposited, and, on the ninth day of being observed, it was converted into a solid calcareous mass. The child had experienced no symptoms of any importance during its progress.

Mr. Battye takes the opportunity, afforded him by this case, to make some observations on the function of the Cerebellum, as the seat of *consensual volitionary movements*. He seems, however, not to have been aware that this theory was long ago enunciated by Rolando, Flourens, Longet, and other physiologists. He explains the occurrence of the tumour, by supposing, that when a child begins to gain the power of combining muscular movements, the Cerebellum becomes enlarged: as a consequence, there is increased ossification, and vascularity of the periosteum, which may, under certain circumstances, take on an inflammatory action; and that this happened in the case related.

PRACTICE OF MEDICINE AND PATHOLOGY.

CHLOROFORM: ITS USES IN VARIOUS DISEASES. NO. II.

(Continued from Vol. I, 1849, p. 361.)

Asthma. Mr. J. L. Beardsall (*Lancet*, March 31, 1849) relates three cases of asthma successfully treated by Chloroform. The first case was that of a clergyman, aged 37, who had been suffering for six years from asthma. On the 20th of June, 1848, when he had been suffering from difficulty of breathing for three weeks, a drachm of Chloroform was administered by inhalation. In five minutes, the breathing was much relieved. Half a drachm more of Chloroform was now administered. On the 22nd, he reported his breathing so much improved, as to enable him to walk up steep hills without being distressed. On the 26th, the difficulty of breathing having returned, Chloroform was again administered as before: and, on July 17, his breathing was reported to be most satisfactory. The second case was that of a woman, aged 34, who had been subject to asthma as long as she could remember, which had lately only been relieved by morphia. The inhalation of a drachm of Chloroform, on each of two separate occasions, was attended with similar results to those mentioned in the last case. The third case was that of a gentleman, aged 21, who had been asthmatic for several years. Chloroform, in drachm doses, was twice inhaled, with marked relief. In all the cases, copious expectoration followed the administration of the remedy.

Cholera. At a meeting of the Royal Medical and Chirurgical Society, on Feb. 23, 1849 (*Lancet*, March 17, 1849), Dr. Baly said that, in his experience of cholera at Millbank Prison, "as a mere palliative of symptoms, Chloroform had been most beneficial. Administered by inhalation, it immediately relieved all pain and spasm, and sometimes, for a time, checked the vomiting. The comfort it in some cases afforded the patient was most remarkable." A similar result attended its use, in a case recorded by Dr. W. M. Fairbrother (*Lancet*, August 4, 1849). After about an ounce had been used, the full effect of anæsthesia was produced, and the cramps, which had been most severe, gradually subsided. The patient recovered. Dr. John Davies (*Lancet*, Sept. 22, 1849) recommends it, both in the premonitory diarrhœa, and in the collapsed stage, in doses of from five to fifteen minims, every

hour or two, in mucilage. One dose, he says, will frequently stop the diarrhœa and sickness.

The Camphor-chloroform mixture of Messrs. T. and H. Smith, of Edinburgh, (see *Lond. Journ. of Med.*, Jan. 1849, p. 102), has been also found productive of great benefit in cholera, as well as in the alleviation of intestinal spasmodic affections in general.

Convulsions (Puerperal). Mr. Turner (*Lancet*, Jan. 12, 1850) administered Chloroform in a case of post-partum convulsions, occurring in a primipara. The fits were prevented by its administration; and, on two or three occasions, when the Chloroform was omitted to be given, they returned. After its use had been persevered in, by using it as a preventive of the convulsions, for eight and a half hours, there was no recurrence of the fits.

In the *Medical Times* for March 23, 1850, a case of severe convulsions is related. They had come on during labour, and had continued, with undiminished severity, till the middle of the next day; the patient having had thirty-three confirmed attacks. No means having been effectual in allaying them, ten or twelve drops of Chloroform were applied to the nose on a piece of rag, immediately upon the appearance of rigidity of the lower extremities, which preceded the fits. The effect was the immediate alleviation of the general spasm, and the entire destruction of the contraction of the facial muscles: at length, the whole body was rendered perfectly passive, after a steady application of Chloroform for three hours and a half. The patient ultimately recovered. Mr. Norris communicated to the Edinburgh Obstetric Society (*Monthly Journ. of Med. Sc.*, May 1849) a case of a woman who suffered from convulsions during, and after parturition. In the last fit, Chloroform was administered with success.

Cynanche. A correspondent of the *Prov. Med. and Surg. Journal* for April 4, 1849, says that he has used Chloroform in the form of gargle, in cynanche, with good result. One drachm, to one ounce of distilled, or rain water, is the proportion for the gargle.

Delirium Tremens. Mr. G. Hyde (*Lancet*, June 9, 1849) relates the following case. Mr. B., aged 40, of plethoric habit, was attacked with delirium tremens, on June 3rd, 1849. He was treated with opium, morphia, tartar emetic, and spirits of wine, up to the morning of the 6th, when it was determined to administer Chloroform. About a drachm and a half was held to the nostrils on a sponge. Spasmodic respiration and violent plunging of the body were almost immediately produced; but he was soon in a state of anæsthesia. He remained to all appearance in a placid sleep for about eight minutes, then awoke, yawned, and looked about him inquisitively. After a few moments, he talked a little incoherently. He continued in a restless state, raving for about half an hour, and then fell into a quiet deep sleep, remained so for nearly fourteen hours, and awoke with clear and sound intellectual faculties. The case afterward progressed to recovery. In a case recorded by Dr. Selkirk, (*Lancet*, Dec. 15, 1849), opiates had been used for four days, without success. Chloroform was administered by inhalation. Violent convulsions of the whole body ensued, and continued for some seconds; gradually the muscular system relaxed, the head dropped on the pillow, and the patient slept almost uninterruptedly for twelve hours. The next day, he was nearly well.

Hydrophobia. Dr. S. Jackson (*Amer. Journ. of Med. Sciences*, April 1849) relates a case of hydrophobia occurring in a lady, aged thirty. Chloroform was inhaled, with the effect of relieving the spasms: it was also administered in the form of enema (two drachms with two scruples of Dover's powder in starch water). The Chloroform was inhaled whenever the spasms threatened to come on, with the effect of restraining them. The patient ultimately recovered; but the excision of the cicatrix of the wound which had been inflicted by a dog, also probably contributed to this result. In the same journal, Dr. Parkman gives a case, in which the inhalation of Chloroform

was unsuccessful, though anæsthesia was produced; and the patient rapidly sank. The *Edinburgh Monthly Journal* for August 1849, contains the following—"We have received from Dr. G. Smith, Bengal Horse Artillery, a strong testimony to the efficacy of this anæsthetic, in subduing the spasms and alleviating the sufferings of a boy affected with hydrophobia. The lad was kept alive rather more than two days; the spasms were much modified by the anæsthetic, and the impression left upon the practitioner's mind is, that the disease might ultimately have been subdued, had not his stock of Chloroform most unfortunately failed him, just when perseverance was most required. In the intervals between the administration of the Chloroform, the patient drank liquids most freely, to the extent of several pints, without any difficulty, and without any consequent recurrence of spasm." In a case of hydrophobia at Dalkeith, Chloroform was also administered without success.

Laryngismus Stridulus. In the *Lancet* for Sept. 1, 1849, Mr. W. J. Cox states, that he has found Chloroform and hydrocyanic acid pre-eminently useful in laryngismus stridulus. With regard to Chloroform, he says: "It is to be employed during the paroxysm. When the spasm of the glottis is passing into convulsion, the ingress of air nearly suspended, the head thrown rigidly back, the veins of the neck turgid, the face livid, the hands clenched, etc., and when, the usual remedies having failed in producing relaxation, danger of suffocation is imminent, a piece of lint dipped in Chloroform should be applied in a handkerchief over the mouth. In a few seconds, the muscles will be relaxed, the spasms will be over, and the little patient will breathe freely. The sudden effect is often almost magical."

Nephritic Colic. Dr. Stille (*Trans. Phil. Coll. of Physicians*, vol. ii) stated, that Dr. Bowditch, of Boston, related to him a case of nephritic colic, occurring in an individual who had previously suffered from several attacks. Chloroform was administered with the effect of inducing entire relief from the pain, without abolishing consciousness. The influence of the Chloroform was kept up for several hours, when, at length, the stone passed through the ureter.

Neuralgic Affections. Mr. F. G. Broxholme (*Lancet*, June 9, 1849) administered Chloroform to a young lady, aged thirteen years, suffering from quotidian hemicrania. The pain was confined to the parts within the cranium, and the paroxysms, which lasted from two and a half to three hours, were attended by intense vascular excitement. The pain would suddenly cease, and be followed by an attack of spasmodic dyspnœa, resembling asthma, and continue for about three-quarters of an hour. This having gradually subsided, was followed by sleep. Quinine was administered, and suspended the paroxysm for a day. The paroxysm having returned, apparently with greater intensity, Mr. Broxholme administered half a drachm of Chloroform by inhalation, the effect of which, in inducing quiet and repose, was instantaneous. She remained under its influence for a quarter of an hour. On the following day, there being a return of the paroxysm, but of less severity, the Chloroform was repeated; she remained under its influence three quarters of an hour. The patient had no return of the pain, and ultimately recovered, the use of quinine being continued. In another similar case, which would not yield to aperients and quinine, Mr. Broxholme employed Chloroform with similar results.

In the *Medical Times* for February 17, 1849, Mr. J. Hutchinson relates the case of a lady who had an attack of brow-ague, which was removed by quinine and change of air. About twelve months after, the disease again returned, on the day following her confinement. On the next morning, when a paroxysm was coming on, Mr. Hutchinson bathed the part with a few drops of Chloroform, and afterwards laid on it a cloth saturated with some. The application had the immediate effect of converting the pain from a throbbing to a benumbed sensation. The paroxysm was shorter and less intense.

On the two following days, the application was repeated when the pain threatened to return, after which the patient remained quite well.

The following case is related by Mr. C. B. Barrow (*Medical Times*, April 20, 1850). A delicate young lady, of nervo-lymphatic temperament, had been suffering from facial neuralgia for several days. The pain was excruciating, occupying the tract of the temporal and facial branches of the right facial nerve. It was somewhat of an intermittent character, and throbbing, but, for the most part, continuous. She took the citrate of quinine and iron, etc, but without any impression being made upon the disease. A few drops of Chloroform were applied to the part on a linen cloth. In this way, about thirty drops were used, the effect of which was almost instantaneous relief. The patient complained of a stinging, burning pain during its application, and for a moment could not bear it; but this passed off, and she has not had the slightest return of the neuralgia. She certainly continued her tonic treatment for some time. Such was the marked relief, that the patient entreated to have a few drops left with her, lest the pain should return. In the same Journal, for April 27th, Mr. W. E. C. Nourse states, that Mr. Wilde, of Dublin, has applied Chloroform in neuralgia with great success. His method is, not to put it upon linen, but upon a piece of spongio-piline coated externally with India-rubber, thus preventing evaporation, and confining its action more strictly and effectually to the part. When first applied, it causes a burning sensation, by no means pleasant; but this shortly subsides into rather an agreeable warmth, and the pain begins to dull in a few minutes, nearly or quite ceasing. The skin is much reddened by its use for a short time afterwards. There is no sort of objection to its employment in the case of the most delicate person; but it has the disadvantage of partially losing its effect on repetition, like all other local remedies in such cases. This can only be obviated by constantly alternating its use with something else, such as tincture of opium, or hyoscyamus in hot water, ʒj. to ʒj.; lotions made with extract of conium or belladonna, smearing with extract of belladonna or veratrine ointment, or a morphia lotion, 2 grs. to ʒj. Ether might be tried in the same manner as Chloroform.

It is stated by Dr. Brainard (*N. W. Med. and Surg. Journ.*, Sept 1848, as quoted in *Amer. Journ. of Med. Sc.*, June 1850) that he has frequently found periodical neuralgia to resist quinine, but that it has readily yielded to Chloroform. He relates two cases of periodic facial neuralgia, in which the inhalation of Chloroform was attended by immediate and permanent cessation of the pain; and a case of irregular neuralgia, in which the use of this remedy, inhaled in doses of about twenty minims daily for two weeks, caused the attack daily to become milder, and at last to cease altogether. Dr. Isaac Hays (*Trans. Phil. Coll. of Phys.*, vol. ii) employed Chloroform to produce local anæsthesia, with the most happy effects, in the case of a gentleman, fifty years of age, who had long suffered from neuralgia of the foot, in which all the remedies that had been employed failed to produce relief. Dr. Hays found the patient in intense pain, which had deprived him of sleep the whole of the preceding night. Dr. Hays directed the affected parts to be enveloped with a pledget of lint, or a few folds of muslin, wet with Chloroform, and the whole to be covered with a portion of oiled silk, to prevent evaporation. On the next morning, he found him entirely free from pain, which did not return. Whether the relief was to be ascribed to the local anæsthesia produced by the Chloroform, or was to be considered as a mere coincidence, Dr. Hays did not pretend to decide.

Otalgia and Odontalgia. A correspondent of the *Prov. Med. and Surg. Journal* for April 4, 1849, says that he has constantly found relief to be afforded by Chloroform in these affections. In otitis, and in the painful rising of the teeth in children, before they are sufficiently near the surface to obtain any relief from lancing the gums, he has found the most pleasing effect. In the former case, he places a drop or two on some scraped lint,

and applies it to the ear or tooth ; in the latter, he rubs the gums with the finger moistened with the liquid.

Traumatic Tetanus. Dr. Selkirk (*Lancet*, Dec. 15, 1849) administered Chloroform by inhalation, from the fourteenth day of the disease, every six hours, in a case of traumatic tetanus. It acted as a prophylactic to spasmodic action : but its action was merely palliative, and the patient died on the twenty-second day of the disease. In the same Journal for Dec. 1st. an unsuccessful case is also related by Mr. Solly. Mr. S. G. Sloman (*Prov. Med. and Surg. Journal*, Sept. 5, 1849, relates a case of traumatic tetanus following laceration of the right ear, and some injury of the neck, in a man who had been run over by a cart. The tetanus set in fifteen days after the accident. On the fourth day, he had rigid spasm in every limb, and in the abdominal muscles, considerable opisthotonos, and trismus. Mr. Sloman administered one drachm of Chloroform on a handkerchief. The patient soon expressed himself as perfectly easy, then became delirious, and in a very short time quite unconscious, and slept soundly for two hours. When he awoke, the spasms began to return, and Chloroform was again administered with success : and was repeated in two and a half hours. After this, the Chloroform was repeated on several occasions during the next day : but it appeared to lose its effect in subduing the spasms, each time it was administered. Calomel and bimeconate of morphia were then given. The spasms after this became less frequent and intense, and the patient was, three weeks after, in a fair way of recovery. Dr. E. H. Clarke (*Amer. Journ. of Med. Sc.*, July 1849) relates the case of a man, aged 27, who had tetanus from a wound on the back of the thumb. Chloroform was administered by inhalation ; and the patient was kept uninterruptedly under its influence for twenty-five hours, during which period there was slight stertor, but not always total unconsciousness. After an interval of forty hours, the tetanic convulsions recommencing, inhalation was resumed, and continued for six hours. No perceptible ill effects followed this prolonged inhalation. The tetanic symptoms were immediately alleviated, and the patient recovered in a few days.

DR. A. KILGOUR ON THE TREATMENT OF CARDIAC DROPSY.

In a paper on Disease of the Heart, and the Dropsy following it, published in the *Monthly Journal of Medical Science* for September 1850, Dr. Alexander Kilgour makes the following remarks. In the treatment of Cardiac Dropsy, every practitioner has his favourite remedy, taken from the class chiefly of diuretics or purgatives, or both. Of the former, I have found the following combination the most efficient. ℞ Infusi Digitalis ʒiv ; Acetatis Potassæ ʒij ; Spiritûs Ætheris Nitrosi ʒij ; Aquæ Cassiæ ʒiss. Capiat cochleare magnum quartâ quâque horâ.

At last there comes an attack, in which this and other diuretics cease to act, and we must then fall back on purgatives. Of the latter, unquestionably the most powerful is elaterium. But there surely must be a very great diversity in the strength of this medicine. Some practitioners, from the days of Sydenham, and long before him, downwards, appear to have given it in the dose of two grains, or even more ; but I have found a single pill, according to the following formula, generally very powerful :—℞ Elaterii gr j ; Extracti colocynthidis comp. ℈ijss ; Extracti Hyoscyami gr. xij. M. Divide in pilulas xij. Capiat unam nocte maneque. The great objection to the elaterium is the intense sickness, even in this small dose, produced by it. Do the large doses produce less sickness than the smaller ? It may be so ; but, in the few instances in which I have tried large doses, the sickness was not less. Is there any mode by which this sickening property in this valuable medicine could be removed ?

It is the opinion of some, that the elaterium acts as a diuretic, as well as

a hydragogue cathartic. I remember, when in consultation with Dr. Adams, of Banchory, in a case of cardiac dropsy, having my attention called by him to a formula, where the elaterium was combined with a diuretic, which he had seen prescribed with very great success. It acted most powerfully by stool and urine (being composed of several of the most powerful of the diuretics, along with the elaterium); but I always found it to cause much and violent sickness. ℞ Extracti Elaterii, gr. ij; Spiritus Ætheris Nitrosi ʒij; Tincturæ Scillæ, Oxymellis Colchici, āā ʒss; Syrupi Rhamni ʒi. M. Ft. Solutio. Capiat drachmam unam ex aquæ pauxillo, ter quaterve in die.

The combination of a bitter purgative with a saline one composed of the vegetable alkali and a vegetable acid, is, in my experience, much more efficient than any single purgative, or than a bitter with a salt formed of a mineral acid. The old compound powder of jalap is a well-known instance of a mixture of this kind, and is still one of our best purgatives in all dropsies where this class of medicines may be suitable. Ferriar used, as did also Home, a combination of half an ounce of the bitartrate of potass with two grains of gamboge. The infusion of senna with bitartrate of potass is also an old-fashioned and valuable remedy; but the insolubility of the salt is an impediment to the efficiency of this formula. The senna infusion with tartrate of potass, or with the tartrate of potass and soda, is not liable to the same objection; and I can testify to the advantage of the frequent use of this combination in cardiac disease having a tendency to dropsy, or in the dropsy itself attending that complaint.

The preparations of mercury have proven, no doubt, very successful in the treatment of this form of dropsy. Without wishing at all to detract from the merits of this most valuable agent, I must confess that, in chronic diseases of the heart, I do not like it, and cannot speak from experience of its efficacy in cardiac dropsy.

There comes a time, in the treatment of this complaint, when not only diuretics in all forms, but even purgatives, cease to remove or even to keep in check the anasarca. And this brings me to speak of another mode of treatment, which often proves palliative for a time,—viz., puncturing the lower extremities, and thereby draining off the fluid. This is not a new mode of treating the disease, though it has at various times fallen into unmerited neglect, and perhaps at the present time more so than at any other. I have not only often seen it of great benefit to a patient labouring under anasarca, no matter what the pathological cause of that disease, but have also in some cases seen it prove a cure, or, at any rate, that, after recourse had to it, internal medicines, which previously exerted no effect on the dropsical effusion, began to act, and the anasarca did not reappear. I do not, however, recommend it until all internal remedies have failed.

There are two modes in which the opening for draining off the fluid may be made,—either a puncture with the lancet, or with a good stout sewing needle. From a single puncture by the latter, a quantity of water will sometimes run out, so as to pass through the bed in a few hours, and require to be collected in vessels placed below it.

Heberden has evidently seen the danger attending this mode of treatment, though he does not say specifically in what it lies. The danger consists in the inflammation of an erysipelatous character, which not unfrequently takes place, extending up the limb, sometimes bringing on *sphacelation*, and for the most part ending in the death of the patient. But from one incision, and one, or at the most two punctures, in the proper place, erysipelas is not so apt to occur. The state of the skin—its low vitality during the existence of the dropsy under it—is singularly favourable for this form of inflammation: but a small clean cut, or one or two punctures,—and, if there be two, at a distance of not less than two inches from each other,—is not so likely to be followed by this as when, in the anxiety to get the water all off speedily, several have been made. Several writers recommend fomentations to be ap-

plied to the wound ; but I have often found the evaporating lotion very successful in keeping down any disposition in the part to erysipelas. Frequent ablution also with tepid water, and the removal of any cloths that may be soaked with the serum that has run out, will serve to prevent, so far, any irritation from being set up in the skin.

When the operation, even with the needle, has to be often repeated, as is sometimes the case, for the ease of the patient, especially in cardiac dropsy, there is sometimes a degree of inflammatory action set up in the cellular tissue, by which its interstices become obliterated, and the skin and it become quite closely adherent to the fascia below. I remember this occurring in a gentleman, who had been kept alive for some months by punctures, and who was at last dropsical everywhere, except below the knees, where the adherent and thickened integuments would not distend,—thus giving him, however, not a little pain. It has of late been recommended to have recourse to this treatment much earlier in the disease than was the custom ; and it has been said, that the chances of success from it are much greater, than when the patient's strength has been exhausted, and the vitality of the skin has been impaired by the long existence of a dropsical effusion. This reasoning is fair ; but the fluid does not flow so freely from the incisions, as when the areolar tissue has become more open and less resilient, from the long existent pressure of the effused serum. And, little as the danger of erysipelatous attacks may be from puncture of the skin in the early stage of anasarca, still there are few that will subject the patient to this chance of danger, until all the other more usual and often successful modes of treatment have been tried in vain.

As to the application of blisters to the anasarcous legs, with the view of draining off the serum—I would have scarcely thought it necessary to speak, believing that none, now-a-days, would adopt this practice ; but lately I met a very intelligent country practitioner, who told me that he occasionally had recourse to this application. The exciting of a vesication, by means of a blister, is much more likely to be followed by dangerous, than by curative effects in all anasarcous limbs, from whatever cause the dropsical effusion may have arisen.

FATAL OBSTRUCTION OF THE INTESTINAL CANAL FROM PERITONEAL BANDS. ARE SUCH BANDS SOMETIMES CONGENITAL?

The two following cases are reported by Mr. C. R. Thompson, in the *London Medical Gazette* (July 12, p. 61), as having recently occurred in St. Bartholomew's Hospital. We abridge the details.

Case I. Mary G., aged 20, was admitted 13th Nov., 1848. *Condition on Admission.* Pulse 120, small, and rather sharp ; tongue moist, coated on dorsum with very thick brown fur, clean at the edges ; bowels not opened for *seven* days ; slight vertigo and nausea when on her back ; abdomen distended, generally dull on percussion, intolerant of pressure, especially in the umbilical region.

History. Was a single woman in domestic service. She always enjoyed good health till a fortnight ago, when she got wet feet, which checked the catamenia. The next day she became very sick, vomited her food, and suffered from severe griping in the umbilical region. She entrusted herself to a druggist.

Treatment, etc , in Hospital. Venesection on 13th Nov. to 12 oz. Attempts by purgatives (administered by mouth and anus) to relieve the bowels. She died on the 18th, delirium and feculent vomiting having preceded death.

Post-mortem Appearances 65 hours after Death. *Abdomen.* Peritoneum generally rather vascular; about four ounces of slightly turbid fluid, containing flakes of lymph, in the sac; some deposits of puriform matter at the bottom of the pelvis. Small intestine greatly distended ; the peritoneal coat vascular and thickened ; a broad line of redness ran along the border of the

intestine where the coils lay in contact with each other; a few slight shreds of lymph, here and there, held the coils slightly together at their surfaces of contact. Large intestine pale, contracted, and nearly empty. The transverse portion of the colon was drawn down with the *right iliac region*, by a short narrow band proceeding from its lower border, and attached to the spine by means of the portion of mesentery corresponding to the last part of the small intestine. This band passed in front of the small intestine about an inch before its termination in the cæcum, compressing it against the spine, and constricting it so as to render it impervious. The portion of the colon, from which the band originated, was closely and rather firmly adherent to the constricted part of the small intestine, the thinner and more friable bands passing from one intestine to the other. The mesentery immediately surrounding the constricted part was inflamed, thickened, and matted around the intestine.

The entire length of the small intestine, as far as the constriction, was filled with liquid bilious matter, such as had been vomited during life. The mucous membrane was reddened and swollen in the neighbourhood of most of Peyer's patches, the individual glandulæ of which had burst, leaving spaces surrounded by a thickened border of mucous membrane. Each Peyer's patch thus presented a broad oval surface, the mucous membrane of which appeared worm-eaten, and as if irregularly removed by ulceration.

Here and there a swollen red solitary gland was seen. As the small intestine approached the seat of constriction, it became very vascular, and presented discoloured streaks and spots, as if from commencing sloughs. The piece of small intestine between the constriction and the cæcum was pale and contracted, and its mucous membrane irregularly ulcerated. Stomach distended with liquid bilious contents. Liver natural; gall-bladder distended with a quantity of thin dark bile; spleen natural; no morbid appearance of uterus or ovaries; kidneys large, heavy, and congested, but apparently of healthy structure.

Case II. Hannah R., aged 23, was admitted in the morning of the 7th Feb., 1850. *Condition on Admission.* Pulse from 140 to 150, very small, and thready; lips and tongue dry; respiration about 25, and natural; pain from the most gentle pressure on any part of the abdomen, but especially in the hypogastric and iliac regions; abdomen generally soft, except in the umbilical region, where it was rather tense; tympanitic resonance over the colon, and on the epigastrium, but marked dulness in the umbilical and hypogastric regions. The patient was restless, lay indifferently on either side, with the knees slightly drawn up. Occasionally she vomited a light coloured frothy fluid, of decidedly feculent odour, and resembling working yeast in appearance.

History. She was a delicate married woman, by trade a toy-painter. She had been confined four times. The last labour occurred five months ago, and was at the seventh month of utero-gestation. Since that time she had suffered frequently from troublesome constipation, for which she had been under medical care: during the last three months, the motions had been of unusually small calibre. Four days ago, the bowels were but very imperfectly opened after a three days' constipation. Since that time, she had had pain in the abdomen, constipation, and stercoraceous vomiting.

Treatment; etc. Two ounces of thick high-coloured urine were drawn off by the catheter. Copious enemata were thrown into the rectum by a tube eight or ten inches long. Wine, beef, and brandy were allowed *ad libitum;* but she died at 4 p.m. on the 8th, the day after admission.

Post-mortem Appearances 20 hours after Death. *Abdomen.* On exposing the peritoneal cavity, an extremely fœtid odour was perceptible. The parietal layer of the peritoneum was dotted with numerous small circular milk-white spots, more distinctly seen after exposure to the air; these spots were in the substance of the serous membrane, and not removeable except by

carefully dissecting it from the subjacent cellular tissue. The great omentum was gorged with dark blood, and looked, at its lower part, like a bag of large distended veins. On raising it, it was found to be adherent to the subjacent intestines by recent lymph; on separating these adhesions carefully, there appeared an aperture in a mesenteric vessel of considerable size, freely giving exit to blood, of which about half a pint had escaped into the pelvis, probably during life. The contiguous surfaces of the intestines, both large and small, were also agglutinated together, and to the parietes of the abdomen, by recent lymph, which was easily broken down by the handle of a knife. The greater part of the small intestine was of a deep red colour, very much distended in the upper part, and contracted below; about two feet of its length appeared more distended, and of a darker colour, than the rest of the intestine, almost black, or dark claret-coloured: in the middle of this dark part was an ash-coloured slough, about three inches long, with a well defined margin: the extremities of this congested fold of intestine were tightly girt by a firm band, passing from the surface of another portion of intestine of the mesentery at the point of constriction: this band was very strong, and firmly attached at both its extremities.

The contents of the strangulated portion of intestine gave to the finger the sensation of hardened fæcal matter, which was found to be caused, however, by the congestion and enlargement of the *valvulæ conniventes;* for, on opening the canal, it contained only about one point of dark fluid blood. The mucous membrane presented even a darker aspect than the exterior, and the internal surface of the ash-coloured spot was scarcely to be distinguished from the adjacent membrane: the mucous membrane was easily stripped off in various points. A considerable quantity of blood was also contained in the intestine, for a short distance above and below the stricture. The seat of constriction corresponded nearly to the umbilicus; but the coil of included intestine reached to the right lumbar region. It was a part of the lower end of the jejunum. Stomach healthy; also the large intestine, which contained, near the cæcal valve, a few hardened scybala. Pancreas and spleen of normal size and aspect. Liver showed some portal venous congestion: otherwise healthy. Kidneys rather large, but apparently normal.

Remarks. Rokitansky has found abnormal peritoneal bands, or rents in the mesentery, to be the most frequent cause of internal incarceration. These bands are probably, in most instances, the result of some previous inflammation of the peritoneum. In many recorded cases, we find a distinct history of mesenteric mischief; in the case related by Mr. Hilton, in *Med.-Chir. Transactions*, vol. xxx, the patient, 20 years of age, was the subject of mesenteric disease in early childhood, and, some time subsequently, suffered from symptoms which indicated peritonitis; here, from the history, the nature of the obstruction was accurately diagnosed, and found after death to be a band of false membrane, including a knuckle of the ileum. Mr. Druitt also records an instance, where a boy, eleven years old, died after the operation of gastrotomy for the relief of the intestinal stricture; and old adhesions were found in the peritoneal sac, one of which was the cause of the constriction. The boy was stated to have suffered for eight years with occasional severe attacks of pain in the abdomen, subsiding under the use of medicine.

In the two cases above related, there was no evidence of former peritoneal mischief; indeed, from patients of this class, it is always difficult to get a clear account of their ailments. In both instances it was carefully observed, that the abnormal band forming the constriction was the only one discovered of any strength or consistence, which seems to disprove the inflammatory origin of the bands, and raise a suspicion of their being congenital. Rokitansky mentions the frequent congenital occurrence of unusual length of the duplicatures of the peritoneum, or of supernumerary folds and pouches of that membrane. These pouches are chiefly found, he says, in the hypo-

gastric, and more especially in the iliac and inguinal regions, and about the fundus vesicæ; and communicate with the peritoneal cavity by a well-defined fissure or ring, frequently surrounded by a tendinous band, lying in the duplicature.

CANCER IN POSTERIOR MEDIASTINUM: PHLEBITIS.

The following case, related by Professor Larsen, is published at p. 151 of the *Bibliothek for Læger* for January 1850.

A woman was admitted into hospital, at Copenhagen, with slight varicose ulcers in one leg, which were soon healed. In a short time, her appearance became cachectic, and she was seized with phlebitis in the left arm. The superficial veins were obstructed; but the symptoms were removed by anti-phlogistic treatment. Some time after, she was seized with symptoms of phlebitis in the thigh. The whole limb swelled; the crural vein felt like a hard cord; the superficial veins were obstructed; the disease extended; and she died in a state of increasing weakness and cachexia. After death, the brachial veins were found almost entirely obstructed, and filled with coagula: the morbid appearances extended into the vena cava. A probable cause of the phlebitis was found, in the form of a cancer, in the cellular tissue along the aorta and vena cava, and extending as far as the diaphragm.

PULMONARY CANCER: OBSCURITY OF PHYSICAL SIGNS.

A labourer, aged 34, was admitted into the General Hospital at Copenhagen, on 14th October. A month previously, he had commenced to be affected with emaciation and sweats. A fortnight before admission, he first perceived chest symptoms, which began with a violent, irritating cough and frequent dyspnœa. When seen, he had also palpitation, anorexia, and thirst; his pulse was 100, and his strength failing; expectoration was difficult, and the sputa were scanty, white, and frothy. He complained of pain in the neck; but nothing could be discovered on examining the throat. The percussion-sound was normal; and the stethoscope only revealed some sibilant rhonchus. His condition became worse on the subsequent days. The cough was more frequent, the expectoration more abundant, the respirations from 50 to 54, the pulse 130; diarrhœa had set in, the perspiration increased, and was accompanied, in three days, by chills. His sleep was disturbed by orthopnœa; emaciation advanced more rapidly than could be explained by the other hectic symptoms; the countenance was sharp and anxious; the stethoscopic signs remained the same. After he had been in hospital for five days, he was observed to have a swelling of the veins under the left clavicle, extending over the shoulder. Two days later, he was seized with œdema lower down in the arm, which rapidly spread upwards, but was unattended with pain or swelling of the veins. Percussion was now dull under both clavicles, respiration was as before, and the expectorated matters contained some purulent clots. Some days later, the glands along the clavicle, and in the axilla, were hard, and swollen to the size of hazel-nuts. The dyspnœa and orthopnœa remained, the pulse was from 120 to 130, and the respiration from 46 to 50. The case was diagnosed to be one of Pulmonary Cancer, on account of the aspect of the countenance, the varicose veins, the swollen glands, and the œdema, although auscultation gave no great support to this opinion. The Cancer was considered to be diffused, or to be situated in the centre of the lungs. Some days later, œdema appeared in the ankles. On examining the patient, the percussion-sound was found less clear, and the heart was higher than usual, evidently in consequence of the increase of the cancerous growth. The patient died, under symptoms of general exhaustion, on November 4.

Post-Mortem Appearances. Both mediastina were found filled with medullary Cancer, which seemed to have originated in the bronchial glands. The surrounding cellular tissue was emphysematous: this had prevented the seat of the Cancer from being discovered by percussion. On the pleura, also,

nearest the pericardium, there were large carcinomatous masses. The lungs were universally heavy, and appeared, externally, as if hepatised; but no hardened portions could be felt in them. On section, they were found to be in the first stage of so-called cancerous infiltration. There was a remarkable development of cellular tissue, in the form of thick rings, round the entrances of the divisions of the bronchial tubes into the lungs On scraping the cut surfaces, there exuded, from numerous small, white, scattered carcinomatous spots, a creamy fluid, which, as well as the bronchial glands, contained cancer-cells. (*Bibliothek for Læger*, January 1850.)

DR. POLAK ON THE ACCOMPANYING DISEASES, SEQUELÆ, AND METASTASES OF CHOLERA.

The observation of the epidemic or endemic diseases which accompany Cholera, possesses scientific and practical interest. During my charge of Cholera patients for two months in Klobauk and Tessan, I either personally treated or else witnessed twelve hundred cases. The following are the results of my observations:

1. I noticed thirty-one cases of Dysentery, of which five were consecutive on Cholera, the rest were idiopathic. As the persons attacked lived in houses where cases of Cholera had occurred, it is probable, that both were modifications of the same disease. Cholera patients are sometimes attacked by dysentery. The identity of the two diseases is farther confirmed by the circumstance, that in both the bile-pigment is absent from the stools, and that its reappearance may be considered as a sign of returning health. Epidemic dysentery, also, does not differ from Cholera in the manner in which it attacks patients. It is true, that the pathological appearances are different; but this may be explained by supposing, that Cholera runs its course too rapidly to admit of localization. Few pathologists, indeed, will seek for the causes of typhus in the infiltration of Peyer's patches, or of dysentery in the ulcers of the large intestine.

2. In the province of Tessan, Measles prevailed at the same time. Nearly all the children who had this disease, were attacked with Cholera—several during the premonitory symptoms, several after the eruption, several in the period of desquamation. Many who had recovered from Cholera, passed through an attack of measles. A young man had a bad attack of Cholera: there were severe cramps, extensive cyanosis, and pulselessness. He was treated by frequent cold ablution of the whole body; and recovered. Three days after, fever and catarrh set in, and measles appeared over the whole body, and ran their usual course to desquamation. It is important here to observe, that I have not confounded measles with roseola.

3. The relation of Cholera to Intermittent Fever was remarkable. In this district, which at an earlier period was covered with extensive marshes, most of which have been dried and reclaimed for cultivation, epidemic ague prevails in various, and often malignant forms. In July, it was observed by myself and other physicians, that there was a considerable diminution in the number of cases; in August, when Cholera broke out, the intermittent fever was, as it were, cut off, so that occasional cases only occurred here and there. In five cases, the first cold stage was attended by a severe choleraic paroxysm, which ended favourably: the paroxysms on the third day had their normal character. In my examinations of Cholera patients, I often found, that they had suffered from intermittent fever some weeks previously, from which they recovered spontaneously. A case came under my notice, in which a boy, fourteen years old, had intermittent fever for two months, the paroxysms at last becoming mild: in one of these, he was attacked by Cholera, and died.

Of the various remarkable phenomena, metastases, and sequelæ, which were observed, hæmorrhages were most frequent. These occurred (*a.*) In two cases, as bleeding from the nose. (*b.*) In seven cases as otorrhagia. The patients complained for several days of pain and noise in the ears. A large

quantity of blood was discharged, with considerable relief. In some cases, where the pain was very severe, a quantity of pus or lymph was discharged instead of blood. (*c.*) In two cases, which terminated fatally, there was hæmorrhage from the lungs.

The following were the metastases. (*a.*) In several cases, there was furunculus, which, however, might in all cases have arisen from rubbing with hard materials. (*b.*) Parotitis occurred in six cases: in five, it proceeded to suppuration, and, in a sixth, which I scarified at an early period, it ended in resolution. (*c.*) Blennorrhœal otitis occurred in several instances. (*d.*) Iritis was observed in one case. A man, who had passed through a slight attack of Cholera, was attacked, a short time after, with severe iritis, which might very probably be considered as metastatic, from analogy with the otitis. (*e.*) A young man, who had passed through a very severe attack of Cholera, had, during convalescence, furunculus, and inflammation of the right shoulder-joint. (*f.*) In two cases, delirium remained after Cholera; but was removed by bleeding and derivants.

With regard to the absorbent power in this disease, the following fact is worthy of note. A woman, who had been confined to bed the greater part of several years with ascites, was attacked with Cholera in August. In two days, she was free from the swelling and œdema; but, as I afterwards learnt, the fluid collected again. This fact deserves notice, as, in several pregnant women who died of Cholera, I performed the Cæsarean section, and found the liquor amnii in the usual quantity; and other women, who aborted during the disease, discharged the normal quantity of this fluid. [*Zeitschrift der K.K. Gesellschaft der Aerzte zu Wien*, February 1850.]

TURPENTINE AS A STYPTIC IN ACTIVE AND PASSIVE HÆMORRHAGES: THE DOSE, AND MODE OF ADMINISTRATION.

Dr. Thomas Smith, of Cheltenham, ably directed the attention of the profession to the value of Terebinthinate Medicines in a memoir, published in our number for April 1850, p. 321 of this volume. After entering into some details regarding its power over various hæmorrhages, he thus sums up his account of its styptic properties. "In my experience, there is no single medicine that can be compared with it as a *styptic*, either as to certainty of action, or to the safety of its effects. It is compatible alike with acids and with alkalies." In the *Medical Times*, 17 Aug. 1850, p. 167, Dr. William Budd, of Bristol, has published a paper entitled "Case of Purpura; with Remarks on the Styptic Properties of Oil of Turpentine", which contains much that is confirmatory of Dr. Smith's statements.

Dr. Budd justly remarks, that the efficacy of Turpentine in purpura is not dependent upon it as a remedy for the blood lesion: its action is not against purpura as purpura, but against purpura as hæmorrhage. He says that the styptic virtues must depend on its exerting some direct influence on the contractible power of the blood-vessels. This he regards as the only plausible explanation of the equal efficacy of this medicine in restraining bleeding, under so great a variety of pathological conditions. He believes it to be better adapted to cases of passive than of active hæmorrhage.

Dr. Budd has some practical remarks upon *the dose, and mode of administration*; the substance of which we subjoin. In common cases, such as those of purpura, for instance, where time does not press, he has found doses varying from ten minims to half a drachm quite effectual; but in cases of rapid loss of blood, where sometimes every minute is of importance to life, it is better to give half an ounce, or an ounce at once, to be followed up by smaller doses at shorter intervals. The use of this medicine is not without its drawbacks. Few drugs are more repugnant to delicate stomachs. In many it excites vomiting: in others it causes painful strangury; and the irritation of the urinary organs is sometimes so great, that blood is passed with the urine. He has found that half a drop or a drop of creasote to each

dose, almost entirely covers its nauseous taste, and prevents the risk of sickness. Ten or twenty drops of spirit of rosemary will help to make the prescription less disagreeable. Common mucilage is the best vehicle for keeping the Turpentine in suspension. The risk of strangury is not easily obviated; but it may be diminished by the free use of diluents. When the use of the medicine is stopped, the strangury, however severe, quickly ceases.

SURGERY.

THE OPHTHALMIA OF NEW-BORN CHILDREN, AS OBSERVED AT THE FOUNDLING HOSPITAL OF ST. PETERSBURG.

The following is an abridged translation, from the *Journal für Kinderkrankheiten* for March and April 1850, of the abstract of an interesting report drawn up by Dr. Froebelius, of the cases of Ophthalmia Neonatorum observed at the Foundling Hospital in St. Petersburg, from 1st September 1846, to 1st September 1848.

Statistical Abstract. From the 1st September 1846, to the same date in 1848, 882 children were treated for Ophthalmia, of whom 474 were males, and 408 females, being in the proportion of about 6 to 5. The greater tendency of male children to be affected, is more plainly shown by the fact, that from September 1846, to September 1848, 5,929 male children were admitted, of whom 474 suffered from Ophthalmia; and 6,149 females, of whom 408 were affected: the males being thus in the proportion of 4 to 3 to the females. It will be also seen, that 7 per cent. of the total number of children had Ophthalmia.

The *ages* were as follows:

In 110 children		under 4 days.		In 9 children		from 4 to 5 months.	
— 271	„	from 4 to 8 days.		— 3	„	„ 5 to 6	„
— 188	„	„ 8 to 14 days.		— 2	„	„ 6 to 7	„
— 102	„	„ 2 to 3 weeks.		— 1	„	„ 8	„
— 70	„	„ 3 to 4 „		— 1	„	„ 9	„
— 59	„	„ 1 to 2 months.		— 1	„	„ 10	„
— 45	„	„ 2 to 3 „					
— 20	„	„ 3 to 4 „		882 (total).			

The *duration* of disease was various, and depended on the individual sequelæ. In the two years, one case of blepharitis was observed, which disappeared in twenty-four hours. The longest duration was three months; most frequently the disease terminated in from fourteen to forty days. The average period was twenty-three days.

With regard to the *type* of disease, 827 cases of the 882 were admitted in the inflammatory stage. Of these, 115 had conjunctivitis palpebrarum, with photophobia and blepharospasmus; 479 had conjunctivitis of the eyelids and sclerotic, with photophobia and blepharospasmus; 233 had, in addition, conjunctivitis of the cornea. In all, then, conjunctivitis of the eyelids was present; in 712, the sclerotic was also affected; and, in 233, the cornea. In connexion with the great frequency of conjunctivitis of the eyelids, is to be observed the remarkable number of cases in which granulations occurred as sequelæ. The remaining 55 children were above three months old, and were already the subjects of various sequelæ of inflammation in different combinations, viz.: granulations of the conjunctiva, softening of the cornea, ulcers of the cornea, partial staphyloma, entire leucoma, with synechia, and atrophy of the bulb. In the 827 children admitted during the inflammatory stage, the following sequelæ were observed during the course of the disease, and remaining after it: granulation of the conjunctiva, keratomalacia, ulcers of the cornea, partial staphyloma of the cornea, various degrees of opacity (*nubeculæ* and *maculæ*), leucomatous cicatrices, with synechia, atrophy of the bulb, phthisis of

the bulb, and ectrophy of the upper eyelid. Of the 827 children, 463 had the complications before their admission.

The following table exhibits the results of the cases admitted during the two years referred to :

First Year.		Second Year.		
Cases admitted . .	460	Cases admitted . .	422	
Cured . .	305	Remaining from 1st year	43	
Blind . .	16			465
Dead . .	96	Cured . .	266	
Remaining .	43	Blind . .	6	
		Dead . .	165	
Total .	460	Remaining .	28	
		Total .		465

The following statement includes the cases of blindness in the preceding table, and also those observed in the Lazareth. There were 21 cases of blindness in one eye, of whom 4 died, and 4 remained blind ; and 43 in both eyes, of whom 21 died, and 6 remained blind.

The diseases which appeared simultaneously with Ophthalmia, or were developed during its progress, and influenced its result, were premature birth in 88 cases ; aphthæ in 300; jaundice in 222 ; crusta serpiginosa in 216 ; and syphilis in 36. The diseases next in order of frequency, were : bronchitis and pneumonia in 82 cases ; enteritis and peritonitis in 36 ; encephalitis and meningitis in 22 ; and atrophy in 39.

Among the 88 *prematurely born* children, there was not one case in which the Ophthalmia was fully developed ; the swelling of the eyelids had not arrived at its highest degree, nor was the purulent secretion so profuse as in healthy, well-nourished children : but there was observed, in the most important cases, an unusually rapid softening of the cornea, ending in ulceration and total destruction of the eye. The secretion was always a thin fluid pus, frequently mixed with blood, and the abraded surface of the membrane of the eyelids was livid, but did not present firm granulations, such as are observed in other children suffering from this disease. The swelling of the eyelids was soft, œdematous, and livid, and not of a remarkably high temperature. In the 88 cases of premature birth, 40 of which also laboured under jaundice, the following sequelæ occurred : granular conjunctiva in 12, keratomalacia in 9, ulcers of the cornea in 11, staphyloma of the cornea in 1, and atrophy of the bulb in 1. That inflammation of the eye is by no means most frequent in premature children, is shown by the fact, that the number affected (88) was only one-tenth of the total number of cases. The sequelæ just now mentioned, which were mostly observed in those prematurely born children who were affected with jaundice, shew the prejudicial influence of the latter affection on the ophthalmic disease ; for softening of the cornea occurred only once, and ulceration only three times, in children who had not jaundice.

Aphthæ formed the most frequent and unfavourable complication of Ophthalmia, one-third of the patients being thus affected. The prejudicial influence of this complication was evident in the sequelæ ; for, in the aphthous cases, there were found granulations in 194, softening of the cornea in 56, ulceration in 85, staphyloma in 19, and atrophy of the bulb in 25. One-third of all the patients had aphthæ; and in this third, one-half of all the sequelæ, and two-thirds of the cases of blindness, were observed.

The *jaundice*, which was observed in new-born children during the first days of their life, exercised no prejudicial influence on the progress of the Ophthalmia, provided the children were mature and well-nourished ; but in weak and immature children, where the vital powers were not great, the result was much more untoward, as it also was in children of the same category, who had not jaundice.

Crusta serpiginosa seldom appeared before the first month, and was gene-

rally observed after the removal of the Ophthalmia, or, in older children, during its progress. In these it frequently retarded the cure, the granulations on the conjunctiva becoming affected through the extension of the inflammatory process, from the skin covering the eyelids, and the sclerotic conjunctiva and the deeper structures becoming affected. Of the 216 cases of crusta serpiginosa, none were under one month old, 91 were in the second month, and the rest were older.

Syphilis was a very untoward complication. Thirty-six children were thus affected, and the following sequelæ occurred in them: granular conjunctiva in both eyes, in 13 cases; softening of the conjunctiva in both eyes, in 10; swelling of the cornea in one eye, once, and in both eyes in 18 cases; staphyloma of the cornea in one eye, once; atrophy of the bulb in one eye, once; in both eyes, six times. Two per cent. of the syphilitic children became blind; hence, although 1-22 of all the patients had syphilis, 1-9 of the cases of blindness occurred among them.

The other diseases which have been mentioned, are rather to be considered as accidental complications, than as holding any causal relation to the Ophthalmia. There was not a single case of communication of the inflammation from the eye to the cerebral membranes; but there were several instances, in which the development of an erysipelatous inflammation on the face, or even on distant parts of the head, caused a metastasis to the meninges, and acute meningitis of remarkably rapid progress, as shewn by the purulent exudation found on post-mortem examination. The most frequent inflammatory attacks were those of the thoracic organs; and these were most usually developed after the appearance of crusta serpiginosa, when hepatisation rapidly set in, and was followed by death. Atrophy was often the result of an uncleanly, poor living; but it was also observed as a result of Ophthalmia, especially in fifteen patients, who were blind in both eyes. Dr. Döpp has frequently met with this form of death in blind children.

Influence of the Season of the Year. The observations made on this head have not yet led to any satisfactory results. The occasional remarkably increased intensity and contagiousness of Ophthalmia seem to depend less on the season, than on the great number of admissions, and the insufficient number of nurses. In the latter case, nutrition was defective,—one nurse having to feed two children, and to support, at the same time, an increase of duty. The number of children admitted in each month, were, in September 1846, 23; October, 36; November, 44; December, 27; January 1847, 38; February, 43; March, 31; April, 28; May, 35; June, 50; July, 34; August, 40; September, 48; October, 50; November, 25; December, 27; January, 1848, 39; February, 29; March, 33; April, 24; May, 31; June, 34; July, 41; August, 31; which, with 33 cases under treatment at the commencement of the period, make 882. In November 1846, there was damp and cold weather, and the thermometer sank from 2° to 5° Reaum. The Ophthalmia manifested an extraordinary malignity: children who were getting better, became worse, and the contagion also affected two nurses. The epidemic began to abate, when a part of the children were moved into another room, and thereby less heat and purer air was obtained; for, although the quantity of fuel was diminished, the thermometer in the rooms frequently stood, in the evening, at 18° R. In the course of this month, two children became blind in one eye, and four in both eyes. In June 1847, the disease became remarkably epidemic during damp, cold weather, north-west winds, low barometer, and a temperature not exceeding 8° to 12° R.: eight children became blind. Twelve nurses were seized with Ophthalmia. In 1848, the months of June and July showed similar states of weather; at this time, also, cholera prevailed, in consequence of which, the number of nurses was diminished by death and other causes. During this period the Ophthalmia was very malignant, so that in two and a half weeks six children became blind. On the whole, these data point out that the season of the year does not appear to exercise any remarkable influence on the disease.

Pathology. Dr. Fröbelius considers the vascular areolar tissue under the epithelium of the palpebral conjunctiva to be the seat of the disease; the glands of the eyelids becoming only secondarily affected. The part which seems especially to be the seat of the Ophthalmia, is that portion which forms the transition from the palpebral to the sclerotic conjunctiva. If the upper eyelid be everted at the commencement of the attack, when the external covering of the palpebræ is not yet very red and swollen, and when there is only a small amount of mucous secretion between the lids, the tarsal portion is found quite clear, bright, and of a light red, while in the fold of the conjunctiva there is a long, livid, soft tumour, evidently formed by cellular tissue filled with blood, and perfectly resembling the exudation of blood produced by a bruise. If this tumour be opened, a remarkable quantity of venous blood escapes, and the swelling of the eyelids instantly diminishes. In a more advanced stage, the redness is darker and more extended, but least intense at the tarsal border; the livid swelling is also more resistent, and has an uneven granular structure of a dark red colour. Still later, when the swelling and redness have made some progress externally, and the eyelids are opened with difficulty, but the upper lid is still easily everted, there are observed, on the fold of the conjunctiva before referred to, roundish granulations of a deep red colour, which diminish remarkably both in number and in size towards the tarsal border. With the extension of the granulations, their appearance also is changed: they increase so remarkably in size, that the number of individual granules, in proportion to the surface which they occupy, is diminished, and their round form, evidently from the pressure of the lids and of the bulbs, is flattened, and their apices become broader. In the lower eyelid, which is less subject to pressure, irregular tumours are formed, which increase, and exhibit great hyperæmia. It is very characteristic in this exudation into the conjunctival areolar tissue, that the fold of the membrane becomes more and more level, and at last the eyelid is so far removed from the eye, that ectropium is produced.

When the granulations have lasted for a longer time, they are firm and hard, and exhibit greyish plastic exudation, when a section is examined with a lens. As long as the sanguineous congestion is considerable, the granulations remain of a dark colour; but as soon as the quantity of blood is diminished, (and at this period the inflammation is often mitigated by the occurrence of spontaneous hæmorrhages), they lose their colour, and become pale; and there appear greyish yellow, round, more or less flattened elevations, with a still congested deep-red ground between them The eyelid now gradually loses its hardness and thickness, so that, on eversion, conspicuous oblique furrows are formed in the parts where the exudation is already reabsorbed, while the granulations remain on the raised parts of the eyelids. The masses of exudation assume an entirely different appearance as they become chronic; they can no longer be recognised as single granules, but form large excrescences of a pale red or yellow grey colour, and obtain, according to the quicker or slower absorption in different spots, a quite regular appearance. Between these masses, smooth patches of the conjunctiva, which has regained its normal condition, can here and there be recognised; these gradually extend, until at last the excrescences disappear: the membrane is smooth, but much reddened, and, for some time, pours out an excess of mucous secretion. The so-called papillary bodies in the Ophthalmia of new-born children are thus shewn to be a pathological product, and not merely the enlargement of the papillæ which already exist in the corium; for the latter are never found in the fold of the conjunctiva, which is the chief seat of the disease. The pathogeny of the affection may be described as follows: There is first congestion in the cellular tissue of the eyelids: the vessels are gradually increased, and new ones are formed; these exude plasma, the numerous aggregations of vessels already existing in the cellular tissue form still thicker networks, and there is a proportionately considerable exud-

ation, giving rise to the resistance to incision and the remarkable hæmorrhages. With the disappearance of this mass of blood, the exudation also ceases, while the venous circulation becomes more free, and the remaining symptoms—swelling, redness, and secretion—disappear. Examination after death always exhibited the infiltration of the cellular tissue, and the plastic exudation-masses on the excrescences and on the conjunctiva.

When the inflammation has attacked the sclerotic conjunctiva, the photophobia, spasmodic contraction of the eyelids, and the swelling increase. On the sclerotic conjunctiva, there is very quickly formed a fine thick network of vessels, extending to the cornea. In twenty-four hours, a chemotic swelling has generally formed on the cornea, and the latter soon loses its transparency, and has an appearance like glass which has been breathed on. These changes sometimes proceed so rapidly, that the cornea is rendered perfectly opaque in twenty-four hours. It is then still possible, though more difficult, to open the eyelids. Under the microscope, the dull whitish cornea shows a loosening of the epithelium, which is raised into bladders in particular places; and this takes place most early in the centre of the opacity, where it is most intense. In from twenty-four to forty-eight hours, the epithelium is thrown off, and washed away by the purulent secretion, in the whole extent of the cornea, so that only a narrow border remains. When this occurs, the lamellæ of the cornea are observed to be attacked; rarely only the superficial layers are affected, but generally its entire thickness is destroyed, but to a smaller extent than the epithelium. The deeper the lamellæ, the smaller is the extent of the destruction; so that the point at which the cornea is perforated is only of the size of a pin's head, forming the apex of a funnel. Several autopsies have shown the existence of a funnel-shaped cavity, with the prolapsed iris at the apex. The whole of this process bears a remarkable resemblance to the death of the cornea, after section of the trigeminus nerve, as observed by Longet and Pappenheim. In this case, the rapid softening of the cornea might be produced by the impediment to the circulation, as well as paralysis of the nutritive nerves of the cornea in consequence of the chemosis of the sclerotic conjunctiva.

These cases, in which the disease was concentrated on the conjunctiva covering the sclerotica and cornea, were neither observed to be preceded by a phlegmonous swelling of the eyelids, nor accompanied by a profuse secretion of pus; while the cases of the highest degree of palpebral conjunctivitis, with profuse purulent secretion, often continued long, and disappeared without leaving any trace of opacity of the cornea. Only in very tedious cases of granulations, when the purulent secretion was very gradual in diminishing, the access ' crusta serpiginosa brought on a relapse, in which the globe of the eye wa: ttacked, and then the softening process sometimes took place. Another evi esult of the implication of the globe in this disease, is the formation of ulcers on the cornea, which were produced by the extension of the disease from the conjunctiva of the sclerotic and cornea, in the phlegmonous inflammations of well-fed children. Several bundles of vessels extended from the borders of the cornea, and extended into a fine thick network, in the middle of which a phlyctenula formed, generally towards the circumference of the cornea. This phlyctenula soon burst, leaving a small abscess, which, if it were not sufficiently protected from the destructive influence of pus, rapidly penetrated deeply, without extending much in breadth: it usually showed a slight opacity in the vicinity, and sharply defined borders. Blepharospasmus, photophobia, and a more watery secretion accompanied it. This process of ulceration soon ends in performation, and prolapse of the iris, if it sets in when Ophthalmia is at its height. Yet the prognosis in these cases was more favourable than in those of softening: and deep ulcers were frequently observed to be perfectly healed, with a slight lateral displacement of the pupil and *synechia anterior partialis*, without any essential impediment to vision.

In healthy children, it is sometimes possible to arrest the progress, both of the ulceration, and of the process of softening. The inflammation then recedes, the chemosis disappears, the network of vessels is diminished, and the cornea gradually becomes clearer, leaving, however, a certain unevenness, but without opacity, at the spot which has been denuded of epithelium. If the cornea itself have been destroyed at this point, a central spot is formed, which gradually decreases in breadth. After perforation has taken place, there remains a leucomatous cicatrix with synechia, and often a staphyloma, so that sight can only be regained by the formation of an artificial pupil.

Dr. Fröbelius recognizes two forms—blepharo-blennorrhœa and ophthalmo-blennorrhœa—in children, as in grown persons; the latter form is that, in which the disease of the eye precedes that of the eyelids. An accurate line of demarcation cannot be drawn between the two forms.

Prognosis. This depends on the complications, as well as on the activity and extent of the inflammation. Even a moderate degree of inflammation becomes unfavourable, if aphthæ appear; the inflammation then increases, and assumes an erysipelatous character, so that this sudden increase may lead us to infer the presence of aphthæ. It is only by energetic antiphlogistic means that this disease is now to be subdued; and if we wait for a single day, for the further progress of the aphthæ, the bulb will be already attacked, and the patient will not escape without sequelæ. In icteric children, the eyelids were livid, especially towards the edges, the swelling of which was moderate and soft. The conjunctiva, when turned up, was seen to be yellow-red only in the vicinity of the swelling before described; the secretion was watery, of a bright yellow colour, mixed with some flocks of mucus; it coloured linen yellow. This complication was dangerous only when the yellowness of the skin remained, the bowels were constipated, and the respiration impeded; the strength then rapidly diminished, and the Ophthalmia was destructive, if the child did not first die from the impeded respiration.

Causes. The causes of the Ophthalmia of new-born children are considered by Dr. Fröbelius not to exist in the Foundling Hospital, but much rather in the removal of the children to it, they being freely exposed to light and air on the road; and still further in the miserable domestic condition of the lower classes, to which by far the greater number of children belong, who are admitted into this institution.

Treatment. 1. In the commencement of the disease, while the swelling, redness, and secretion of mucus, are moderate, and if the intestines are regular in their function, the eyes should be frequently and carefully cleaned with tepid water; they should also be protected against hurtful external influences, and this is best effected by dropping almond-oil into them twice a-day. At the beginning of the disease, especially before purulent secretion commences, cold applications are much to be recommended, especially when they can be very diligently renewed. 2. If the palpebral conjunctiva were very remarkably swollen, the redness darker, and the secretion of pus so much increased as to flow during sleep from the inner angle of the eye, a solution of corrosive sublimate in the proportion of gr. i to ʒi of water, with ʒss of tincture of opium, was applied. 3. If the redness were very vivid, and the hard swelling of the eyelids increased, so that they were difficult to open, and if there was discernible swelling and redness of the sclerotic conjunctiva, especially when the mucus appeared mixed with blood, a leech was applied to each temple, and almond-oil was continued as an emollient remedy, and to prevent the agglutination of the eyelids. 4. For photophobia and spasms of the lids, a solution of ʒss of extract of belladonna in ʒii of water was used: ten drops of which were poured on the hand, and rubbed into the supra-orbital and temporal regions several times daily, according to circumstances. 5. When the swelling of the lids, the photophobia, and the spasms, have disappeared, and when the inflammation of the bulb has ceased, but there is still profuse purulent secretion with commencing granulations, then a solution of gr. i to ii of nitrate of silver in ʒi of water is applied

several times. 6. The treatment of granulations of the palpebral conjunctiva varies according to the degree of the disease and its prevailing type: and it is further influenced by the character and duration of the disease. The blue red swelling in the fold of the conjunctiva, as soon as the eyelids exhibit congestive redness, and the secretion principally consists of a white mucus, is opened in its long diameter. The bleeding which follows is encouraged by means of tepid water, and finally cold applications are used to prevent reaction. Dr. Fröbelius here mentions, that the artificial leech, introduced a short time before by Knusmann, had been found of great use. This instrument not only perfectly supplies the place of leeches, but also seems to possess some advantages over them. If the granulations are scarlet red, with an elastic inflammatory swelling of the eyelids, and much purulent secretion, photophobia, and spasm of the lids, and if, as is usually the case, the child be strong, leeches, followed by the artificial leech to each temple, are the most successful remedies. The emollient remedies before-mentioned are to be also employed, together with friction of mercurial ointment and belladonna on the region of the eyebrows. This treatment is more particularly demanded, if spontaneous hæmorrhages or aphthæ appear. 7. When the granulations are pale red, the granules indistinctly developed and irregular, and the purulent secretion profuse, but the swelling of the eyelids soft, the redness of the external skin, and the photophobia and spasms, slight, the sclerotic white, and the cornea clear, and if the child can open the eyelids, cauterisation with nitrate of silver in substance, and cold fomentations to prevent inflammatory reaction, have proved of great utility. A single sudden washing out is better than several dabbings, or the application of a brush to any single part of the eyelids. Immediately after cauterization, oil must be applied to the lids. If the fungosities on the conjunctiva appear fleshy, so that large masses of them project when the upper eyelid is everted, they must be excised. After this, cauterization is sometimes necessary, to overcome the fungous growths. 8. The ulcers of the cornea must be variously treated, according to circumstances. If, in severe cases of Ophthalmia, there was rapidly produced opacity of the cornea, and ulceration, antiphlogistic and emollient remedies were found more useful than stimulants and astringents. Ulcers of this kind were transparent, had sharply defined edges, and penetrated rapidly, before they had extended much. But if they had a dull whitish ground, with irregular edges, and if the surrounding cornea had a pannous opacity, with, however, indistinct inflammatory symptoms, the solution of nitrate of silver was found very useful. The use of *lapis divinus*, sulphate of zinc, and sulphate of copper, with tincture of opium, was also successful, though in a less degree The application of calomel in powder appeared of no advantage. 9. The treatment of keratomalacia was generally unsuccessful, as soon as the lamellæ of the cornea were implicated, and the disease had attacked more important parts. At the commencement, the evil was guarded against by antiphlogistic treatment, while this was still indicated, with frictions of grey ointment, and calomel internally. But if the softening had extended much, especially in weakly children, applications of *lapis divinus* with tincture of opium appeared to answer best, with the internal use of aqua oxymuriatica, especially when aphthæ were present. In several cases of incipient softening, Dr. Fröbelius employed the aqua oxymuriatica, without any other external means than dropping in oil, with the most happy results. 10. The iris, when prolapsed, was cauterized, and belladonna was applied several times to dilate the pupil. Dr. Fröbelius considers a timely use of the latter remedy as likely to prove of the greatest service in preventing greater injury to the eye. All cases of staphyloma which were forming, were cauterized. 11. The internal treatment was regulated by the condition of each individual child. In plethoric children, with a very red countenance, and considerable Ophthalmia, abstraction of blood, and the internal use of castor oil were employed. When

the biliary secretion was impeded, and the bowels were scantily moved, calomel was given in doses of half a grain once or twice daily. In mild cases of aphthæ, borax was applied with a brush, and rhubarb with magnesia, in fennel water, administered internally. In very considerable diphtheritis of the mouth, the aqua oxymuriatica was applied externally with a brush, and was also administered in teaspoonful doses three times daily, in some mucilaginous decoction.

PROFESSOR SYME ON THE EXCISION OF ENLARGED TONSILS.

Professor Syme, in a paper published in the *Edinburgh Monthly Journal of Medical Science* for September 1850, states his objections to the treatment of simple Enlargement of the Tonsils by escharotics or ligature, and proceeds to make some remarks on excision, which we give without much curtailment.

The method of excision dates so far back as the time of Celsus, who advises, when other means have failed to remove Enlargement of the Tonsil, "*hamulo excipere, et scalpello excidere.*" It does not appear to have been systematically or extensively employed until the middle of last century, when various French surgeons devoted much attention to its practice and improvement. Of these, M. Caqué, surgeon of the Hôtel-Dieu of Rheims, and his colleague, M. Muzeux, seem, from the excellent papers of M. Louis, in the Memoirs of the Academy of Surgery,[1] to have been most successful in their exertions. The former of these gentlemen operated in many cases with great success; and the latter, in order to facilitate the process of removal, contrived a peculiar sort of forceps, which still retains his name. This instrument is about seven inches in length, and, from the handle of the blades to their junction, resembles that employed for the evulsion of nasal polypus. The extremities of the blades are slightly curved, and each terminates in a double hook, so fashioned as to take a sure hold of any soft substance such as the tonsil. Though the operation was thus rendered wonderfully easy and safe, it still retained a character of difficulty and danger that opposed its general introduction into practice, and in this country precluded its employment entirely until comparatively a very recent period.

In the year 1821, during my residence in the Royal Infirmary of Edinburgh, as House Surgeon, one of the female patients suffered from Enlargement of a Tonsil. After trying sulphate of copper, and similar applications, without success, I attempted the ligature, but without being able to accomplish it; and then, as the tumour was of no great size, resolved to remove it by excision, which was accordingly done very readily by means of a hook and curved scissors. This, as far as I know, was the first instance of a tonsil being cut out in Edinburgh. Next year I went to Paris, and there found M. Lisfranc in his course of operative surgery on the dead body, treating excision of the tonsil as an established operation. He employed for the purpose a straight narrow blunt-pointed bistoury, of which the blade was sheathed, except for rather more than an inch from the point, and explained that if the tumour was pulled inwards from the side of the fauces or merely held steady in its natural position, the knife might be carried with perfect safety through its base, as the blade must then be parallel with the carotid artery, and at such a distance from it as to render any injury of the vessel quite impossible.

Much impressed with the advantages of the operation as thus performed, I endeavoured, on my return home, to promote its adoption; and, having carried with me the forceps of Muzeux, placed them in the hands of Mr. Liston, who afterwards did all in his power, by precept as well as example, to establish the practice. Abundant opportunity has been afforded for determining the merits of the operation, by extensive and long continued experience.

In no instance has hæmorrhage or any other unpleasant accident occurred. The excision is accomplished with hardly any pain; and children, who are sometimes induced with difficulty to submit, in the first instance, seldom

[1] Tom. v, p. 423.

offer any objection to removal of the second tonsil. I never employ a speculum of any sort,—even in the youngest and most obstreporous patients,—the forceps sufficiently keeping down the tongue, and the wide opening of the mouth preparatory to the emission of a cry, affording ample space for the knife to act. In the whole course of my practice, I have only on two occasions failed in accomplishing the object in view, through the excessive size of the tongue, and contraction of the mouth. The knife should possess a very keen edge, as the glandular substance is sometimes indurated, and a partial division of it would lead to great embarrassment, from the blood trickling into the pharynx, and causing such cough or convulsive efforts as must render a fresh seizure of the tonsil next to impossible. I generally remove the left tumour first, and then the right one, by crossing my hands so as still to retain the knife in the right. The process is instantaneous, and the relief immediate. The bleeding seldom exceeds a teaspoonful or two, and no after-treatment is required.

ENCYSTED TUMOUR OF THE LABIUM, SUCCESSFULLY TREATED BY THE APPLICATION OF NITRATE OF SILVER TO THE INTERIOR OF THE CYST. BY DR. R. M'DONNELL.

Having met with some cases of Encysted Tumours of the Labium, which presented greater difficulty in diagnosis than is stated by writers on diseases of females to exist, and having derived the greatest satisfaction from a peculiar method of treatment of these Tumours, I am induced to lay the particulars of the following case before the profession, in illustration of these two points.

I was consulted, March 16, 1846, by a lady aged about thirty-six. She stated that, three years before, after a severe and long journey in the winter, during which she suffered much from the bad state of the roads, she was attacked with violent vomiting, which lasted for a fortnight. After it ceased, she noticed, for the first time, a small Tumour inside the left Labium, which she considered a rupture produced by the efforts at vomiting, having formerly been subject to inguinal hernia. This Tumour gradually increased up to the present time; it was not, at any period, painful, never receded or diminished in size, never emitted any gurgling sound, nor was it ever the seat of œdematous swelling, heat, or redness. It had gradually increased, and had latterly interfered with her movements; and, for some time previous, had prevented her sitting down, except with the body reclining far back; and, when she sat on a hard seat, pain of an acute kind used to shoot upwards, from the Tumour through the sacrum. Latterly, she has been annoyed by a sensation of dragging from the loins. The Tumour itself had never been the seat of pain, nor had there been any discharge from the vagina, or any irritability of the bladder. The catamenia had been absent for years. She had never been pregnant but once, and then she had a miscarriage.

On examination, a Tumour, of an oval shape, was found occupying the left labium; it was about the size of a goose-egg, running along the labium from the anterior fourchette to the perinæum, *and sending a process upwards, for about two inches, along the wall of the vagina.* The skin covering it was devoid of any inflammatory appearance, and moved freely over it. There was no pain complained of when pressure was employed. On coughing, *an impulse was given to the tumour when it lay in its usual position*; but, when it was lifted up, it did not receive any. On percussion, it yielded a dull sound. All attempts at making it enter the abdominal cavity completely failed. No irregularity was noticed on its surface; no rumbling heard at any time, nor was there the least change produced by the varying conditions of the bowels; when constipated, the Tumour was as soft and as small as when they were relaxed.

March 20. An exploratory puncture was made, and matter of a dark olive colour, devoid of odour, escaped. The opening was enlarged, and a tumbler

full of thick fluid flowed out, which was of a creamy consistence; and, on microscopic examination, was found to be composed of decomposed pus-globules, with a large quantity of what appeared to be epithelial scales intermixed. The sac of the Tumour was freely cauterized with nitrate of silver, conveyed on a probe, and the orifice kept open by means of a plug of lint.

March 27. The sac of the Tumour has been filled up with solid secretion, and has undergone great diminution in size. No general disturbance.

April 1. Scarcely any trace of the Tumour to be detected, except some thickening of the labium, giving to it a greater fulness and prominence than the other. Ordered to apply mercurial ointment.

April 10. Perfectly recovered. No traces of the disease left.

Remarks. With the exception of Dr. Ashwell, no writer on diseases of females, that I have consulted, speaks of the points of similarity presented by some cases of Encysted Tumours of the Labium, and vaginal and pudendal hernia. He remarks, "that he has known much difficulty arise in diagnosis of this Tumour, from a hernia"; and, in the case I have detailed, the size of the Tumour, its shape, supposed origin, and apparent connexion with the interior of the pelvis (by means of the ascending process already described), together with the fact, that the patient was predisposed to rupture, and that the Tumour received some impulse from coughing, made me proceed cautiously with an exploratory puncture before laying open the cyst.

It is true, that, for one case which will present any difficulty in diagnosis, we may meet with a dozen where no such obscurity exists; yet, from the occasional occurrence of such cases, the practitioner should examine all with care, before attempting a cure; for it is strange, that, though the differential diagnosis between inguinal tumours and hernia, in the male, is insisted upon with great force by all writers on these subjects, yet, in works especially devoted to diseases of women, little attention is paid to the matter. But it was more especially with the view of illustrating a method of treatment, which I have found invariably successful, and productive of little annoyance to the patient, and of easy application,—that I have laid the foregoing case before the profession.

Four plans of treatment have been recommended for the cure of these Tumours: 1. Complete dissection out of the whole of the cyst—a plan which must be extremely difficult in most cases, in all extremely painful, and in such a case as mine, quite impracticable. 2. Laying open the cyst, and filling it up with charpie. 3. Seton; and 4. Removal of the fluid, and then compression, so as to bring the walls of the cyst into close apposition. The plan of treatment which I have employed for some years past, has been to cauterize, with nitrate of silver, the lining of the membrane of the cyst, so as to cause adhesive inflammation; and this process I have found to be so readily excited by the caustic, that I have never been obliged to repeat it a second time. In some instances I have touched the granulations, occasionally, during the progress of the cure, for the purpose of hastening the filling-up of the sac; and these were instances where I believed that the nitrate of silver had acted, not by inducing adhesive inflammation, but by effecting a change in the functions of the membrane, in consequence of which, it threw out granulations, instead of secreting, as formerly, a peculiar fluid. In every case in which I have used the nitrate of silver in this manner, a speedy cure has followed, unattended by any bad consequences, and the patient has not been aware, in the majority of instances, that anything beyond the mere puncture of the cyst has been attempted. When we reflect for a moment upon the difficulty of dissecting out a cyst even of moderate size, and upon the excessive pain the patient must endure, both in this operation and in the second and third I have mentioned, and when we recollect the extreme difficulty, if not impossibility, of applying accurate pressure, it will be allowed, that the method I propose, is, at least, unattended with any of these inconveniences; and if it should prove in the hands of others, as successful

as it has done in mine, and I have little doubt but it will—it must be considered a plan of treatment preferable to any recommended for the cure of this disease.

The method of preparing the caustic may not be known to some of my readers, and I shall therefore make no apology for describing it: A large-sized probe should be dipped in caustic, which has been rendered fluid by melting in a watch-glass, over a spirit-lamp or wax candle, until there is a complete coating of the caustic on the probe. When this cools, we have the nitrate of silver, in a form well suited for being conveyed through a small opening and into a deep cavity, and by bending the probe, we suit it to the shape of the cyst, and thus it can be brought into contact with all parts. In large cysts, such as that under consideration, I have had two or three probes thus prepared, as the quantity of caustic coating one, is not enough for the extent of surface to which it must be applied.

This method of destroying cysts, I have been in the habit of employing in other diseases, as in the encysted tumours of the eye-lids, and in sebaceous encysted tumours; and lately I succeeded in curing a lady of a tumour of the shape, and about twice the size of an almond, which had been growing for some months on the left jaw, and which had resisted every plan of treatment proposed by her former attendant, who had at last recommended its extirpation. A small puncture was made into it, and its contents, which were composed of a reddish jelly-like substance, were squeezed out. A probe, coated with caustic, was introduced, and freely applied to its interior. For the next few days, a small quantity of bloody serum oozed out, but the tumour gradually diminished in size, and now, no trace of it remains, nor is there the least scar visible, which, I need not say, is a matter of some importance.

The discovery of this method of conveying lunar caustic to deep recesses, has been ascribed by some of the writers in the *Dublin Quarterly Journal of Medicine*, to my friend Mr. Wilde; but the paper in which he first alludes to it, was submitted to myself as Editor of that periodical, before its management fell into his hands; and in a note referring to the matter, he attributed the discovery to Mr. J. Morgan, from whom he had learned it. I mentioned, at the time, that Mr. Morgan was not the discoverer, for the plan was quite familiar to myself and other surgeons long before Mr. Wilde's paper was written, and had been spoken of at a meeting of the Surgical Society, in connexion with the treatment of small nævi. The paper was published, and the obligation to Mr. Morgan omitted; and hence the origin of "Mr. Wilde's method of applying caustic." [*British American Journal of Medicine*, 1849.]

DR. LORINSER ON THE MAXILLARY NECROSIS PRODUCED BY PHOSPHORUS VAPOUR.

The *London Journal of Medicine* for October 1849 contained, at p. 961, an abstract of the views of Dr. Helfft on the Maxillary Necrosis of lucifer-match makers; and the December number contained the abridgments of a paper on the same subject by Mr. H. Taylor, and of a clinical lecture by Mr. Stanley. In the *Zeitschrift der K. K. Gesellschaft der Aerzte zu Wien* for July 1850, we find a statement of the results at which Dr. Lorinser has arrived, from an examination of thirty cases of the disease.

Dr. L. considers the disease as a general affection, with a marked tendency to attack the lower jaw. That the whole organism is affected, is proved by the ashy countenance; by the diarrhœa, and bronchial catarrh; by the pain in the joints, as well as by tuberculosis of the lungs in the progress of the disease. The lower jaw is affected in a remarkably larger proportion of cases than the upper jaw, or the other bones of the face. The first symptom is swelling and tenderness, at a point in the lower jaw: osteophytes are formed, first as irregular homogeneous porous masses, attached to the bone,

of a dirty green colour, in the dried preparation, and containing fine canals, at right angles to the long axis of the bone. In the further progress of the disease, they become more massy and compact, have a lamellar structure, adhere more firmly, and have canaliculi running parallel with the bone. In the meantime, pus and ichor are formed, which dissolve and remove a portion of the new osseous formation, especially of the first-named kind. The bone is denuded of its periosteum, and becomes necrosed: but a firm shell forms over it. In some cases, even the condyle of the jaw is restored. This was observed in some patients who died, at a later period, of pulmonary phthisis—a disease, which Dr. Lorinser has seen to attend all the more severe forms of the affection of the jaw. In the upper jaw, there is scarcely any reparation: the periosteum here seems to have less vital activity, and the osteophytes are thin and pulverulent, and easily removed with the pus, so that their existence has been denied. Dr. Lorinser, however, has found them not only in the upper jaw, but also in the other bones of the face.

With regard to the treatment, Dr. Lorinser is opposed to resection of the diseased part of the bone, on account of the difficulty of determining its extent, because reparation is imperfect, and because, if an affected portion be left, the disease will still extend. He prefers enucleation of the jaw, especially in advanced stages of the disease. In any case, the patients must be removed from exposure to the vapour of phosphorus, and be taken into the country; the abscesses and sinuses must also be opened, to give exit to the pus.

MATERIA MEDICA AND PHARMACY.

LINUM CATHARTICUM, OR PURGING FLAX.

This is a well known indigenous annual, belonging to the natural family *Linaceæ*, and *pentandria pentagynia* in the Linnæan system. It has a slender stem, and small white flowers. It is used as a popular remedy in rheumatism, and other complaints. Dr. Butler Lane thinks that it deserves more notice from the profession than it at present receives. The following is an abridgment of his remarks in the *Medical Times* of July 13th, p. 31.

The extractive matter of the linum catharticum appears to be very soluble in water, and but partially so in alcohol. By the action of hot water, the dried plant yields rather more than one-sixth of its entire weight as an extract, leaving merely inert and tasteless vegetable matter. The medicine has usually been administered in the form of an infusion, but its nauseous flavour renders it very objectionable; and as an aqueous extract of proper pill consistence is readily obtainable, it is the best form for administration. The dose of this is from five to ten grains twice or three times a day; in such quantities, it exerts a mild but efficient cathartic action, generally unattended by griping, and, at the same time, it sensibly promotes the secretion of the liver. The cathartic action appears to influence both the mucous and muscular structures of the alimentary canal, more especially the upper part of the small intestines. The linum catharticum produces no specific effect on the nervous system.

In catarrhal and rheumatic maladies I have found the linum catharticum very effectual. The benefit is more slow in the latter; and seems to depend on the diuretic action. In chronic rheumatism, especially when affecting muscular structures (as in lumbago), it is, I think more efficacious, than any other simple medicine. The diuretic action is readily manifested when the medicine is given at short intervals. In cases of ascites connected with hepatic disease, I have found it very efficient. It is a very safe medicine.

REPORTS OF SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY,

Tuesday, June 11, 1850.

Benjamin Phillips, Esq., V.P., in the Chair.

On Fungus Cerebri. By George Lowe, Esq, M.R.C.S. (Communicated by Frederick Skey, Esq., F.R.S.) Case i. C. K., a groom, was kicked on the forehead by a horse ; this produced compound and comminuted fracture of the skull, with laceration of the brain. Several pieces of bone were removed. Inflammation supervened ; and, ten days after the accident, there was a dirty white pulsating tumour, of the size of a nutmeg, protruding through the wound : from its surface, there was a copious oozing of serous fluid. The patient suffered also from drowsiness and vomiting. Mercury was given ; lint was applied to the wound, and cold dressings to the head. This treatment subdued the disease ; the tumour became more and more fibrous, and at last sloughed away ; and the patient recovered, apparently retaining the full possession of his strength of mind and body.

Case ii. This was a lad, aged 19. The history was somewhat similar to that of the preceding case : but, at the beginning of the fourth week, when convalescent, he ate heartily of beef and other things for dinner. Local and constitutional symptoms again set in ; the fungous tumour returned ; coma came on, and the patient died.

Remarks. The author referred to the varieties of hernia cerebri, as mentioned by authors ; and contended that the only form of the disease was a fungous growth or excessive granulation from the brain, and not a protrusion of part of the brain itself ; for it was not probable, that a piece of the brain of the size of a large orange could be removed, without severe injury to the functions of the organ. Mr. Lowe believed Fungus Cerebri to be the result of cerebral granulation, and that the period at which it appears is dependent on the occurrence and co-existence of granulation and inflammation ; and he pointed out the physiological reasons which led him to this conclusion. In the treatment, the author advocated the early and careful removal of splinters of bone. If inflammation and Fungus supervened, antiphlogistic means were to be employed ; and the only application to the Fungus should be dry lint covered with oiled silk, so as to allow the use of refrigerants to the scalp. If, after inflammation had subsided, the Fungus should not decrease, tonics, and gentle pressure on the tumour might prove beneficial.

Dr. Webster related a case, in which he had seen Fungus Cerebri excised many years ago. The patient had, thirty years after, presented himself to Dr. Webster, in good health, and with his intellect not at all impaired.

Case of fatal Poisoning by Sir W. Burnett's Fluid. By H. Letheby, M.B. (Communicated by T. B. Curling, Esq.) The symptoms and post-mortem appearances were those of irritant poisoning ; and zinc was detected by chemical tests.

Retention of Urine in the Bladder for Nine Days. By A. W. Gabb, Esq. (Communicated by H. Bence Jones, M.D., F.R.S.) In this case, a small oxalate of lime calculus, weighing less than half a grain, escaped with the urine which first passed. Mr. Charles Hawkins regarded the case as unique ; and considered the retention to have depended on spasm, and to have been in the kidneys or their pelves.

Case in which the Urachus remained open, and a Ring-shaped Calculus, formed on a curved hair in the Bladder, was extracted through the Umbilicus. By Thomas Paget, Esq. (Communicated by William

Bowman, Esq., F.R.S.) J. C., aged 40, had suffered for more than a year from painful micturition: and a calculus was readily detected on sounding. There was an opening at the umbilicus, through which urine sometimes escaped. Through this passage, Mr. Paget extracted the calculus with his finger. In the linea alba, there is a circular opening of an inch in diameter, with a thick, hard margin. A hernia, of the size of a goose-egg, protrudes through this, and is covered by mucous membrane. When the hernia is out, no urine can be passed, until, by the efforts required for micturition, the whole of the hernia has been drawn within the abdomen. When this is done, urine escapes freely both by the opening and by the urethra. He can retain a pint of urine.

Tuesday, June 25, 1850.

Dr. Addison, President, in the Chair.

Two Cases of Idiots with Absence of the Thyroid Gland, and Symmetrical Swellings of fat tissue at both sides of the Neck. By T. B. Curling, Esq., F.R.S. In two cases of idiotic children, who had during life present soft symmetrical swellings at the sides of the neck, these were found, after death, to consist of fat-tissue, without any investing envelope, and loosely connected to the surrounding parts. The thyroid gland was also absent; and Mr. Curling thought it very probable, that the abnormal deposits of fat in the neck were dependent on the absence of those changes which result from the action of the thyroid, or on some imperfection in the assimilating processes, consequent on the want of this gland.

Case of Hemiplegia, in which Loss of Speech was a prominent Symptom. By Robert Dunn, Esq. The patient was a woman, aged 65, who had three apoplectic seizures, in the last of which she died. She recovered from the first attack, and regained the full use of her arm and leg, but had the peculiarity of using one word for another. After her second attack, she had paralysis of the right side, and was unable to speak, though her mind was intact. The upper two-thirds of the anterior lobe of the left hemisphere were disorganized; the corpus callosum was nearly destroyed, and so was the upper half of the corpus striatum on the left side. The optic thalamus was shrunken; the anterior commissure and fornix were gone, but the corpora geniculata remained. On the right side, the hemisphere was healthy; but there was a small recent apoplectic clot in the lateral ventricle, on the upper and anterior surface of the corpus striatum. The whole upper portion of the corpus, as well as the outer surface of the thalamus, were in a state of softening. The cerebellum and base of the brain were healthy. Mr. Dunn considered this case to support the view of Gall, that the seat of the faculty of speech is in the anterior lobes of the brain. He considered that, in the case related, the functional power of the left anterior lobe was entirely abolished; and that, although the right hemisphere was healthy, and probably exercised its function as a centre of intellectual action, still the volitional power was wanting, to give utterance to the passing thought, for the corpus striatum was not in its integrity.

On a Case of so-called Chylous Urine. By H. Bence Jones, M.D., F.R.S. The patient was a man, aged 32, who passed milky urine, which contained fat, albumen, fibrin, blood-corpuscles, and alkaline salts. Dr. Bence Jones made some series of observations, to determine the effect of various modes of treatment. The following is the general average per 1000 on the observations. 1. *Animal food;* Urine chylous 968 times, free from chyle 32 times: 2. *Vegetable food;* chylous 910, free from chyle, 90: 3. *With pressure, belt loose;* chylous 667, free from chyle 333: 4. *With pressure, belt tight;* chylous 638, free from chyle 362; 5. *Matico;* chylous 474, free from chyle 526; 6. *Gallic acid;* chylous 17, free from chyle 983; 7. *After Gallic*

acid; chylous 0, free from chyle 1000. Gallic acid was taken for 53 days; on the third day, the albumen and fat disappeared from the urine: and for 69 days after the medicine was left off, the disease did not reappear.

Prolonged Expiratory Murmur as a sign of incipient Phthisis. By Theophilus Thompson, M.D. The author had noticed 308 cases among the out-patients at the Hospital for Consumption, in whom prolonged expiratory murmur was the most prominent symptom, and in 288 of the cases, was almost invariably heard near the apices of the lungs. It was most accompanied by hæmoptysis in 91 cases out of the 288. Assuming that 43 per cent. of the hospital patients have hæmoptysis before softening takes place, he observed that, while the co-existence of hæmoptysis with prolonged expiration pointed to a connexion between it and phthisis, yet the low frequency of hæmoptysis in these cases points out, 1. That prolonged expiratory murmur takes place of other signs: 2. That hæmoptysis more frequently precedes than follows the deposition of tubercle. Dr. Thompson believed that, in the absence of such sources of fallacy as emphysema and bronchitis, this disturbed rhythm of the murmurs is the most early and significant sign of Phthisis.

Case of Abscess in the Vesiculæ Seminales, proving fatal by Perforation of the Bladder, and Extravasation of pus into the Abdominal Cavity. By Mitchell Henry, Esq. The patient was a sailor twenty years old. The symptoms during life simulated hip-joint disease, with purulent, and afterwards bloody urine. He died with symptoms of peritonitis. After death, the remains of an abscess were found in the left vesicula seminalis, which was nearly destroyed by suppuration. The abscess had perforated the bladder by a small rounded hole; the peritoneum reflected from the side of the bladder also became perforated, so that the pus had found its way into the abdominal cavity, and set up fatal peritonitis.

Case of Ileus and Strangulated Hernia occurring in the same Individual. By Samuel Solly, Esq., F.R.S. The patient was a young man, aged 21, who had been suffering from obstinate constipation. Strangulated inguinal hernia occurred, for which he was operated on by Mr. Solly, the external and internal abdominal rings being divided, and the sac opened. After death, a foot and a half of small intestine was found enormously distended, and very black, lying in the pelvis; it was girt by a band about an inch and a half long, connected with the cæcum on one side, and with the peritoneum covering the iliacus externus muscle, close to the internal abdominal ring, on the other. The band was round and firm, and seemed to be either a result of old adhesive inflammation, or the remains of the omphalo-mesenteric duct. Mr. Solly believed it to have been the cause of the previous obstinate constipation.

Special General Meeting, Thursday, July 11, 1850.

Dr. Addison, President, in the Chair.

Changes in the Berners Street House. The Council reported, "that in pursuance of a resolution passed at a Special General Meeting, held May 1st, 1849, they have concluded an agreement under which they are now in possession of the whole house (in which they hitherto had apartments only, at £210 per annum), for a period of upwards of forty years, at £160 per annum. The Council have carefully considered how they could most advantageously increase the accommodation at present afforded to the fellows; and they are of opinion that it is extremely desirable that a larger amount of space should be provided in the meeting room, with improved ventilation. A plan has been procured from Messrs. Wigg and Pownall, architects, by which the necessary accommodation can be obtained, at an estimated cost of £1000. The present meeting room is thirty-two feet long, by twenty-eight feet wide, and seventeen feet six inches in height, the super-

ficial area is eight hundred and ninety-six feet, and the cube contents sixteen thousand feet; as altered, it will be fifty feet long, by twenty-eight feet wide, and twenty feet high, the superficial area one thousand four hundred feet, and the cube contents thirty thousand feet. They are of opinion that the present council room might be advantageously appropriated as a room in which those fellows who wish to read and write, free from interruption, might be accommodated. The substantial and ornamental repairs necessary for the rest of the premises are estimated to cost £600. These alterations the Council beg to recommend to the Society for adoption, and that they should empower the trustees of the Society to sell as much stock as will produce such a sum (not exceeding £2,000) as may be required for defraying the expenses of these alterations, and for the payment (already authorised by the Society) of £300 to Mr. Scott for his interest in the lease of the premises."

The Society, after an animated debate, refused to sanction the proposed expensive alterations, and decided that the house should simply be put in a state of efficient repair.

MISCELLANEOUS INTELLIGENCE.

Approaching Session of the Medical Society of London. The first meeting will take place on Saturday the 12th instant, when the proceedings will be opened by a paper from the President of the Society. This meeting, our readers are aware, is the first since the amalgamation of the old Medical with the late Westminster Medical Society. We cannot but congratulate the Fellows, and the profession at large, upon the pleasing prospect which is now opening. At last, the metropolis may look forward, with confidence, to the establishment of a Society so constituted, as, in every respect, to meet the exigencies of the times. It is a fact, curious yet not less true, that, numerous, great, and deservedly-esteemed, though the scientific societies in London are, there is yet not one in itself capable of carrying out the manifold objects of an Academy of Sciences. Societies that might have taken the initiative in carrying out such views, have so long neglected or refused to act, that they have ceased to be in a position to do so; while others, governed by monopolising bodies, are too deservedly unpopular to undertake the task with any chance of succes. None of these objections apply to the Medical Society of London. With antiquity, and the most active portion of the medical talent of the metropolis on its side, it is preeminently qualified to supply the void.

The Library and Hall of meeting are now in a most central position, at No. 33 George-street, Hanover-square. The meetings are to be held, (as formerly, in the Westminster Medical Society.) on Saturday evening, and are to continue weekly, until the end of May. But the advantages of the Society have been greatly extended: several new and most wholesome measures have been adopted. An old custom in the Medical Society has been also revived, namely, the appointment of Sectional Committees, consisting of distinguished and active Fellows: one for Medicine, one for Surgery, and a third for Midwifery. Other Sectional Committees are in contemplation. The departments of Chemistry, of Materia Medica, and of Statistics, will be duly represented. From the labours of these Sectional Committees, much public and professional advantage may be expected. We would suggest that, in future, the Sectional Committees consist of *thirteen* in place of *seven* members; and that they be elected by the Society. The aggregate Sectional Committees ought then to form the Executive Council. It has been proposed to open direct relations with Government, in relation to sanitary or other measures connected with medical science. Companies and individuals, moreover, requiring information and advice on any point of vital statistics, on new discoveries, or other improvements

made, will have the opportunity, in this way, to obtain the advice and assistance of a Sectional Committee especially appointed for the purpose of giving the information. Herein, it is hoped, will be developed a valuable agency :—a board, whose opinions, unbiassed by Collegiate partialities, or Government control, may ultimately—and the sooner the better—supersede the Board of Health, or, at least, carry out the intentions of that ill-constituted institute in stricter accordance with truth and science,—a task which can never be accomplished by untrained sanitary amateurs. In this way we hope to see Public Hygienics prevented from continuing (as at present) little better than a branch of quackery, and a field for jobbing.

Two Lettsomian Professorships have also been established. Though these appointments are, owing to the limited means at the disposal of the Society, only as yet honorary, it is to be hoped that they may not always remain so. Those who obtain them will at least have reason to be proud of the distinction. They have been named in honour of the distinguished benefactor of the old Medical Society. Their object is to enable Fellows who have become distinguished in any particular branch, to communicate their views in a more public and satisfactory manner—precisely as the lecturers at the Royal Colleges do, only that hereafter men shall not be elected by the partiality of a few high in office, but by general suffrage, merited through their own intrinsic and distinguished knowledge. We hope to see the Lettsomian Professorships become objects of high ambition, honourable emulation, and some emolument.

The library of the old Medical, towards the support of which all available means will be employed, is a great advantage. It is hoped that it may be enriched now, not only in the older standard works, but also by those of more recent publication. Large presents of this kind, from many of our most esteemed modern authors, have already been promised. The Reading Room will remain open, we understand, from 11 A.M. to 10 P.M., and will thus afford ampler facilities for the study and consultation of books, than London has ever yet afforded to the medical profession.

The Fothergillian Medals are well known. This year an additional medal is offered, to commemorate the occasion of the amalgamation.

The number of papers already promised is unusually large; and we may thus look for a very interesting and instructive session. The papers, it is hoped, will be issued at the close of the session in a volume of transactions. Papers only of value should be read ; and *all* those read should be printed in a good but inexpensive form, provided the authors supply their manuscripts when required, and do not cause delay in bringing out the volume.

All these are great, very great advantages, and entitle to gratitude those who planned and carried out the amalgamation. We trust that the motives of the council of the Society, and their exertions during the recess, will be appreciated by every medical practitioner in or near the metropolis. The profession may rest assured, that the Medical Society of London will, if it obtain the support it merits, be surpassed by no other Society ; that it will not only take the lead among the Societies of London, but gain a preeminent position among the most famous and the most learned academies of the world. We therefore earnestly advise all who love medical science, and all who desire (easily and unexpensively) to keep pace with its progress, to rally round the banner of the London Medical Society. Let all metropolitan practitioners, who are not now Fellows, with one consent enter the Society, and then all that could be desired will be accomplished.

Mortality and Public Health of Oxford. An excellent example has recently been set in the city of Oxford, by the publication of monthly and quarterly reports of its sanitary condition, together with classified lists of deaths in the Infirmary. These instructive reports are now regularly issued under the patronage, and at the expense, of the Ashmolean Society, being

compiled by Dr. Greenhill and Mr. Allen, who have appended some valuable editorial remarks. We hail their appearance with satisfaction, and trust that other towns will not fail to adopt a similar publication. Much useful information, now lost to the profession, would thereby be put upon record, and conduce greatly to the advance of sound knowledge and practical experience. According to the Quarterly Report, for the spring of 1850, the state of the public health at Oxford was highly satisfactory; the deaths being proportionally fewer than in the metropolis; although London then proved also very healthy. A comparison even of the mortality from zymotic diseases in the two cities, shows a slight superiority in favour of Oxford. The diseases from which the greatest number of deaths occurred, were phthisis, fever, convulsions, and disease of the heart. The deaths from fever proved more numerous than in the similar period of any of the previous years; whilst those from erysipelas were more than double the average. No fatal case of small-pox has been reported at Oxford in any spring quarter since 1845; an immunity, doubtless, greatly owing to vaccination. The classified list of deaths in the Infirmary contains a short statement of the most important cases, with the chief symptoms, and the pathological appearances observed on dissection. The profession are much indebted to Dr. Greenhill and Mr. Allen for these useful statistical tables. If every hospital and infirmary throughout Great Britain would periodically publish similar official reports, far more correct notions respecting the mortality in public institutions would be acquired, than we at present possess. We believe that the deaths in hospitals are more numerous than they ought to be.

Disgusting Libel on the Medical Profession, published by Order of the House of Commons. Blue Books are often full of worthless and irrelevant opinions; they are also sometimes made vehicles for libel. Mr. Sadler, an undertaker, states in his evidence, that "it is known that surgeons take commission on funerals." This may be true in some exceptional instances, for within the pale of our profession, as in others, improprieties and crimes are committed; but it was grossly wrong to convert an unsupported charge into a disgusting libel on the entire medical profession, as is done by publishing it in the Blue Book. If Mr. Sadler had been asked,—"Is it known that clergymen have committed adultery, and lawyers forgery?" he could only have replied in the affirmative. But would this reply have been published at the expense of the country? It is most discreditable for members of the House of Commons thus wantonly to put forth so revolting, and so false and disgusting a libel on the medical profession.

Testimonial to Dr. J. Conolly, of Hanwell. As an amiable and upright men, and as a learned and accomplished physician, Dr. Conolly is worthy of all praise; but it is in the nobler position of a great benefactor of his species, that he peculiarly deserves the honour and the gratitude of his fellow men. Honour and gratitude never were more richly merited. We are therefore rejoiced to find that a committee has been formed for presenting to him a testimonial "commemorative of his invaluable and most successful labours in ameliorating the condition of the insane."

Testimonial to Mr. G. A. Walker. We hope that a large sum of money may be collected for this most proper object. The newspapers recently announced, that a numerously attended and influential public meeting had been held for the purpose of taking steps to collect a fund "to present Mr. Walker with a Testimonial of the public sense entertained by the community of his energetic, unwearied, and successful labours in the cause of sanitary reform, and of the removal of the dead from the centre of the homes of the living." We are glad to learn that the subscription is going on prosperously.

Lancet Biographies of Living Medical Men. There is at present in course of publication in the Lancet, a series of one hundred biographies of eminent living members of our profession. Objections may at first be taken to the project, on the plea of its indelicacy or general impropriety ; but so far as it has already been executed, there is not much for the most captious to complain of. There have already appeared, interesting and instructive memoirs of Sir Benjamin C. Brodie, Dr. Chambers, Mr. Guthrie, Dr. Marshall Hall, Dr. Clutterbuck, and Mr. Bransby B. Cooper. The seventh of the series will be Sir James M'Grigor. A portrait accompanies each biography.

Biographies of Eminent Deceased Medical Men. The *Medical Times* has commenced a series of biographical sketches. The memoir of John Green Crosse, F.R.S., late of Norwich, is well written, and full of interest.

St. Mary's Hospital, Paddington. The medical and surgical staff are to be appointed about the close of the present year. The candidates are not very numerous.

Sir Benjamin C. Brodie at Dublin. This eminent surgeon was honoured by a public banquet by the Royal College of Surgeons of Dublin on the 29th of August.

Statue of Larrey. A marble statue has been erected to the memory of this illustrious surgeon in the court-yard of the Val-de-Grâce of Paris. The inauguration was recently celebrated with much pomp and ceremony.

Cheap Medical Schools. If Cheap Medical Teaching have degraded the status of the teacher and the taught in England, what are we to expect in America ? In the Rush Medical College of Chicago, Illinois, the students only number 107, yet the following are the terms. Full course of seven professors, 35 dollars ; matriculation and clinical instruction, *gratis ;* dissections, 5 dollars ; graduation, 20 dollars. So much for competition !

The Middlesex Magistrates and the Coroner's Court. The Middlesex Magistrates have a resolution under consideration to the following effect : "That this Court is of opinion that measures should be taken for the substitution of a fixed salary, in lieu of fees to the Coroner, and for the appointing of a Medical Officer to the Coroner's Court, at a fixed salary, for making post-mortem examinations."

Hunterian Orator for 1851. Richard Anthony Stafford, Esq., surgeon to the St. Marylebone Infirmary, a member of the Council of the Royal College of Surgeons, is the gentleman appointed to deliver the annual oration in the theatre of that Institution, on the 14th of February next, in memory of the immortal genius of John Hunter.

Bristol. Several inhabitants of this city have raised a subscription to increase the efficiency of the Guinea-street Hospital. Mr. Eaton has contributed 5,000*l.*, and Mr. George Thomas 1,000*l.* for that purpose.

APPOINTMENTS.

Duvernay, M., appointed Professor of Comparative Anatomy in the *Jardin des Plants*, Paris, in the room of the late M. De Blainville.

Hulme, Edward C., Esq., elected Surgeon to the Blenheim Street Free Dispensary, in the room of Mr. T. M. Girdlestone, resigned.

St. Hilaire, M. Isidore, appointed Professor of Natural History at the Sorbonne, Paris, in the room of the late M. De Blainville.

OBITUARY.

Bulley, John, Esq., Surgeon to the Reading Infirmary, at Reading, aged 76, on the 30th August.

Burman, Hugh Francis, M.D., at Henley-in-Arden, aged 35, on 28th August.

Clarke, H. T., Esq., Surgeon, aged 40, on 23rd August.

Griffiths, Mr. W., aged 27, in Bedford Square, on 11th September. He destroyed himself by prussic acid.

Marshall, John, Esq., many years Surgeon in the H.E.I.C.S., late Physician-General of the Bengal Presidency, aged 67, at Falmouth, on 30th August.

Morgan, D., Esq., Assistant-Surgeon H.E.I.C.S., at Nainee Tal, Bengal, on 21st June.

Neville, Joseph, Esq., Surgeon, at Croydon, aged 47, on 12th September.

Taylor, Alexander, Esq., Surgeon R.N., at Queenstown, Ireland, on 7th Sept.

Young, G. W., Esq., Surgeon, at 37, Mortimer Street, Cavendish Square, aged 75, on 30th August.

BOOKS RECEIVED.

Bright (James) on Diseases of the Chest. London: 1850. Carpenter (W. B.) on Alcoholic Liquors. London: 1850. Chambers (T. K.) on Corpulence. London: 1850. Holland (G. C.) on Phthisis. London: 1850. Howard on the Eye. Montreal and London: 1850. Smith (Thomas) on Terebinthinate Medicines. [Reprinted and enlarged from this Journal.] London: 1850. Taylor (William) on the Treatment of Febrile Diseases through the medium of the Skin. London: 1850. Yearsley on Deafness. London: 1850.

TO CORRESPONDENTS.

Mr. Martin of Reigate, and the State of the Medical Profession. Our recent articles on the State of the Medical Profession, have called forth letters from various parts of the country. The general tenor of these is alike gratifying to ourselves, and creditable to the profession. Several suggestions have been made to us, and shall receive our best attention. We have to thank Mr. Martin for his letter, and the accompanying address, on apprenticeships, delivered at a recent medical meeting at Reigate. Mr. Martin agrees with us in thinking that the system of apprenticeship, although liable to abuse, and requiring beneficial modification, is by no means so essentially objectionable as it is sometimes represented to be; and that if properly carried out, *the three years now usually spent as an apprentice*, may be made the most valuable period of the student's career. We are happy to find our views upon this important subject confirmed by one of so much experience and weight.

Classified Lists. We must request several correspondents, who have addressed us regarding the Classified Lists, to remember that they are neither intended to supersede an Index as copious as that of our volume for 1849, nor to diminish the space at present devoted to the monthly Digest of the Journals. We hope, however, to save much space by a greater condensation of the Reports of Societies, and by so doing, we expect to give *the Classified Lists as so much additional matter*. Most papers of value mentioned in Dr. Henry's lists have been, or will be given in an extended or abridged form in our pages; and therefore, for purposes of research, the Annual Indices must be consulted, as well as the Classified Lists of papers; the one will be found to be an essential supplement to the other. While we make our Journal a key to the medical literature of the world, we take care (for the sake of those who have not access to large collections of books) to render it likewise a rich and complete Library of Medicine—a perfect repertorium of all that is new and useful in the various sciences embraced in, or accessory to, Medicine, Surgery, and Obstetrics.

Communications for the Editor to be sent to 100, St. Martin's Lane.

ERRATUM.

Dr. Hale was styled (in the title of his paper, p. 720), "Extra-Licentiate of the College of Physicians", in place of "Licentiate". The error arose from the designations of the list of contributors on the cover having been made up from the *Medical Directory*, in which Dr. Hale is erroneously styled "Extra-Licentiate". The error thus adopted, unfortunately crept in at p. 720.